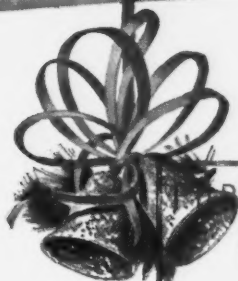


Chilton's MOTOR AGE

DECEMBER 1951



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● Whatever the engine condition, whatever the operating condition, Hastings gives you the right combination built around the famous Steel-Vent oil control ring.

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EVERY ENGINE CONDITION



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for....

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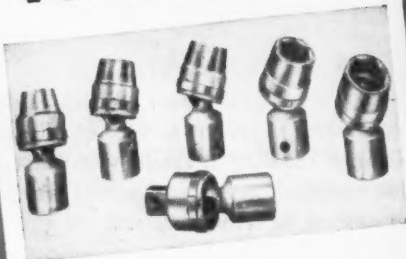
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For THE AUTOMOTIVE SERVICE INDUSTRY

LXXI, No. 1

December, 1951

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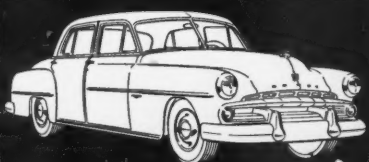
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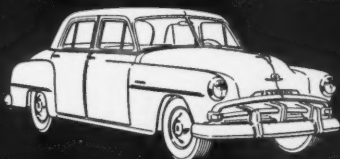
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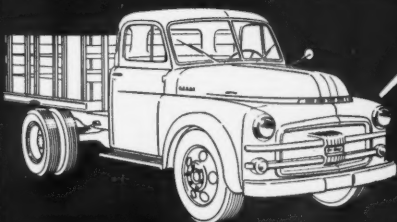
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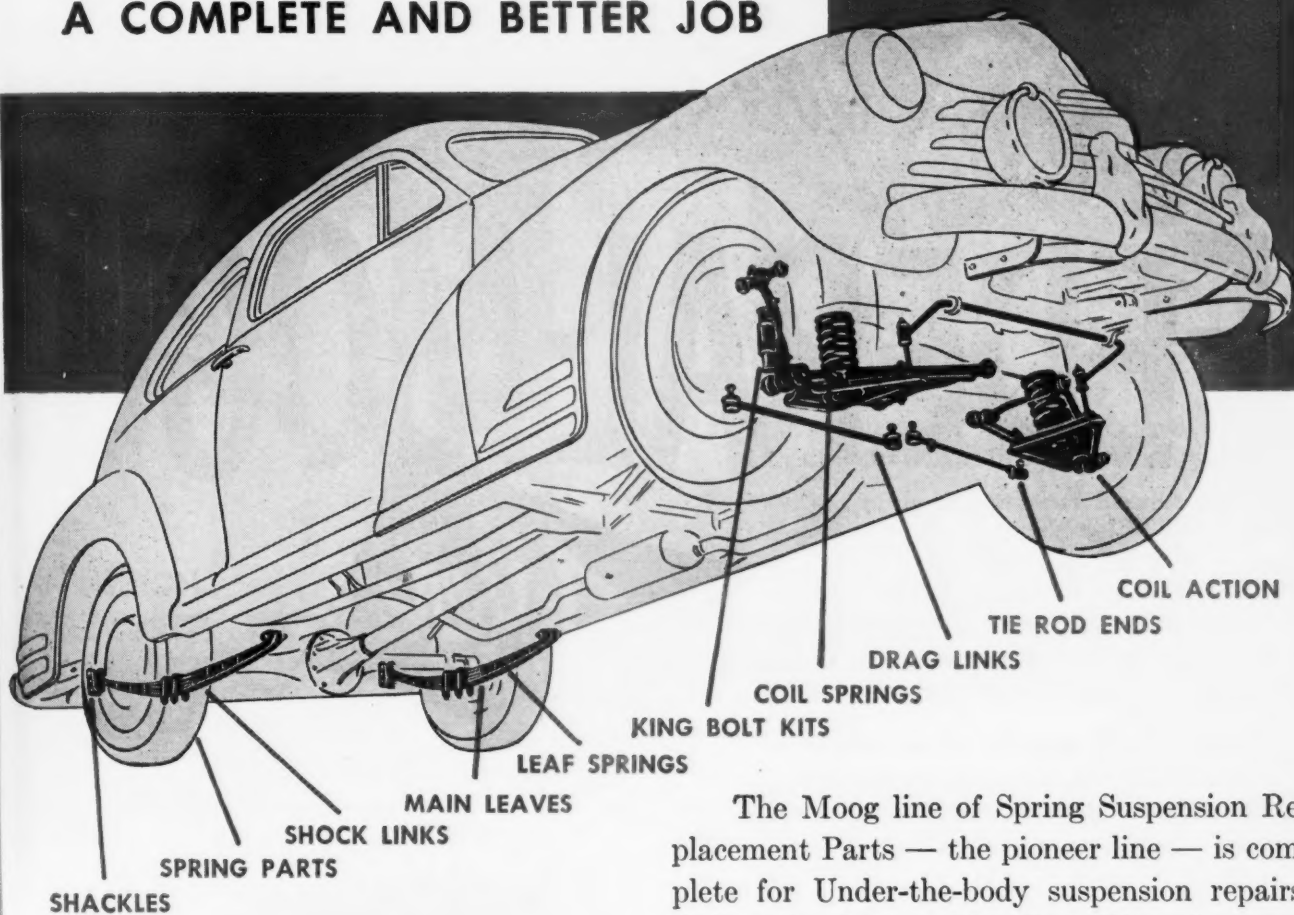
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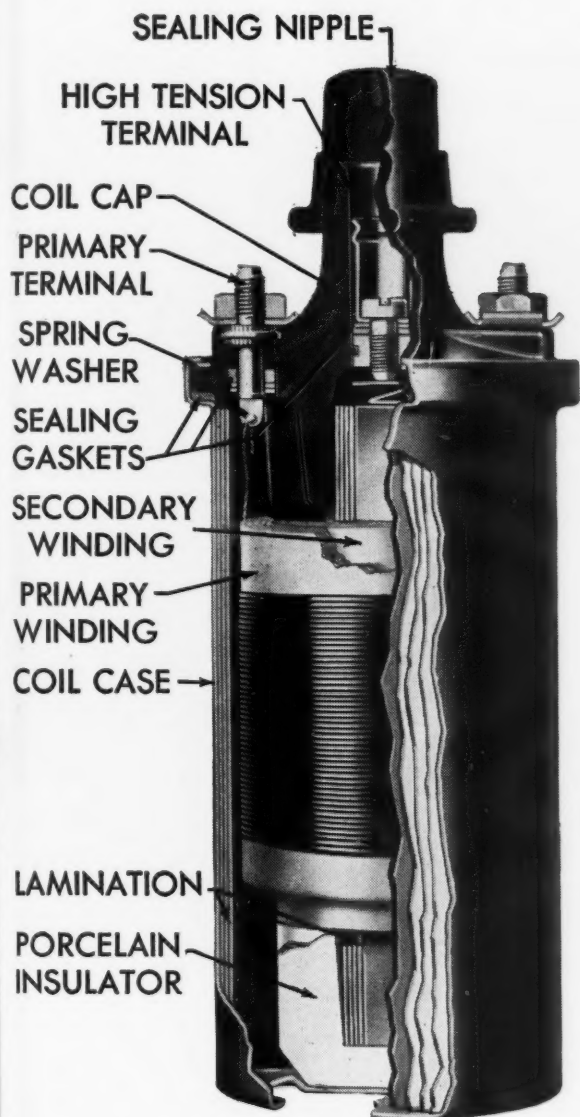
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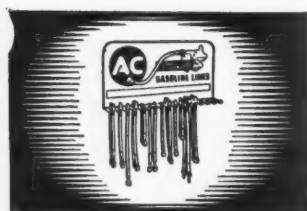
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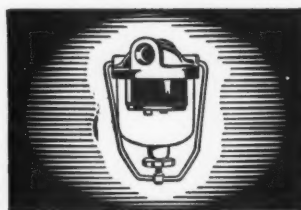
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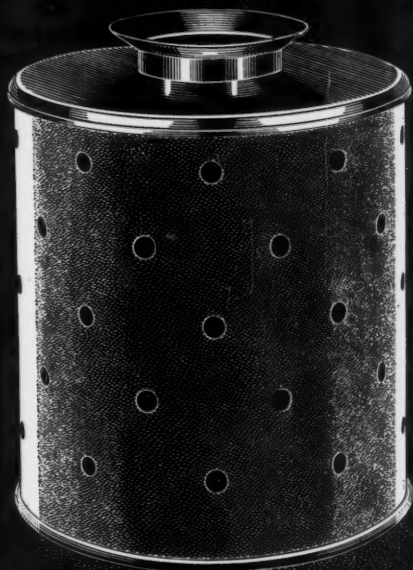
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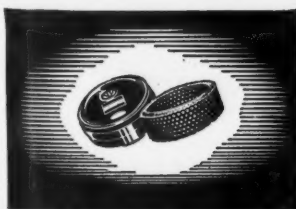
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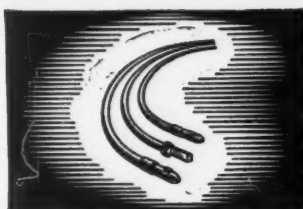
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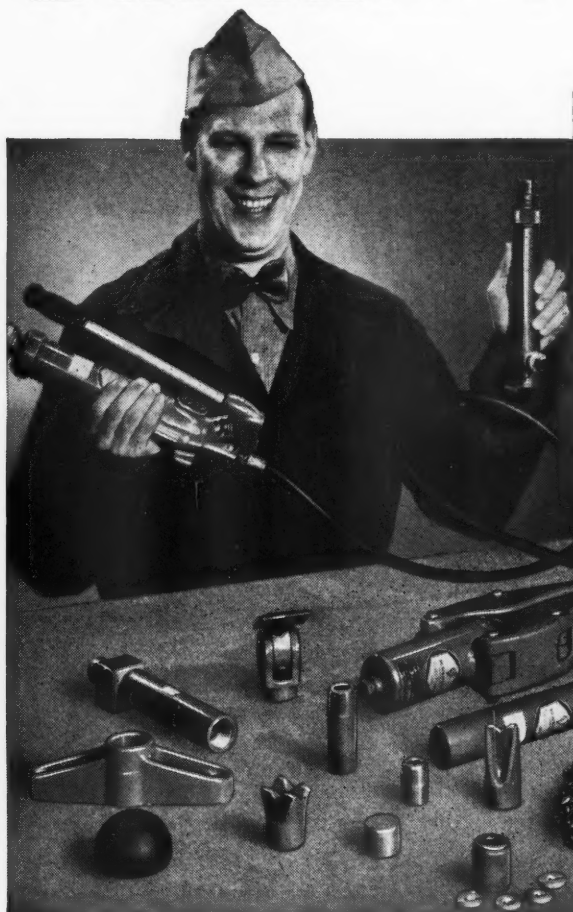
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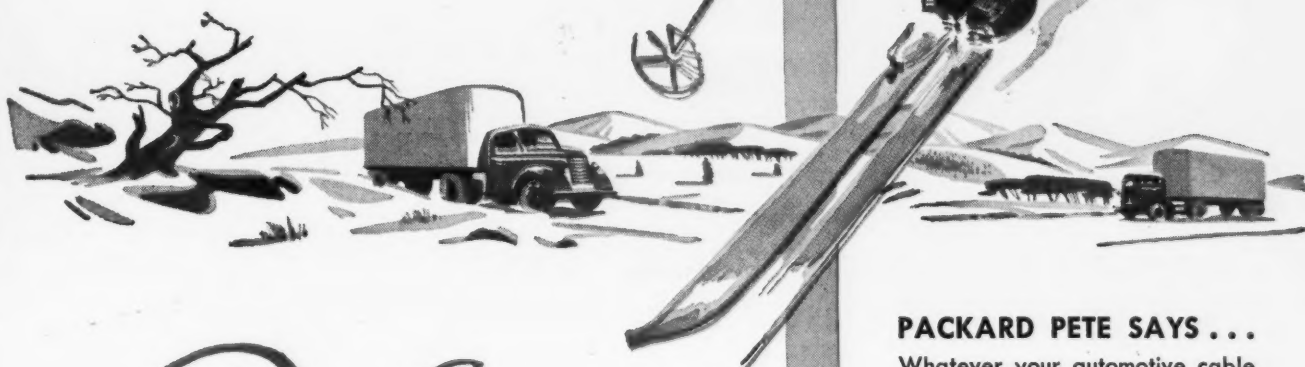
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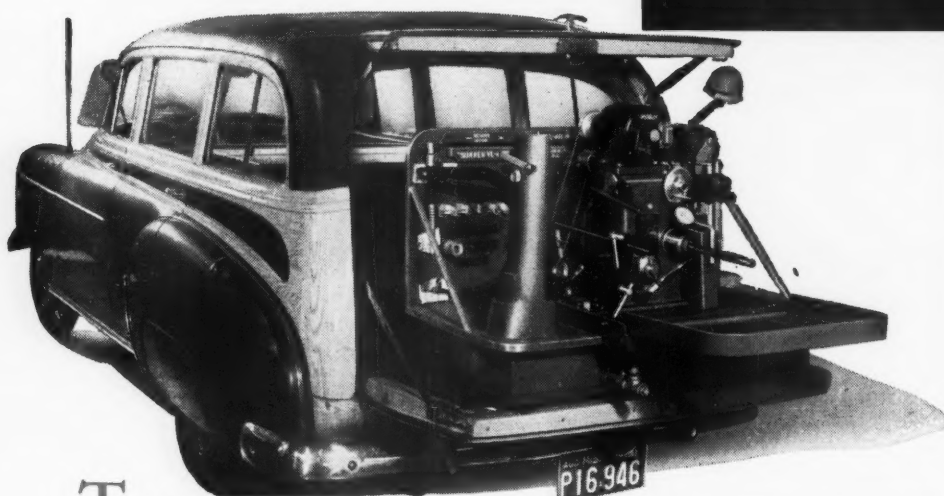
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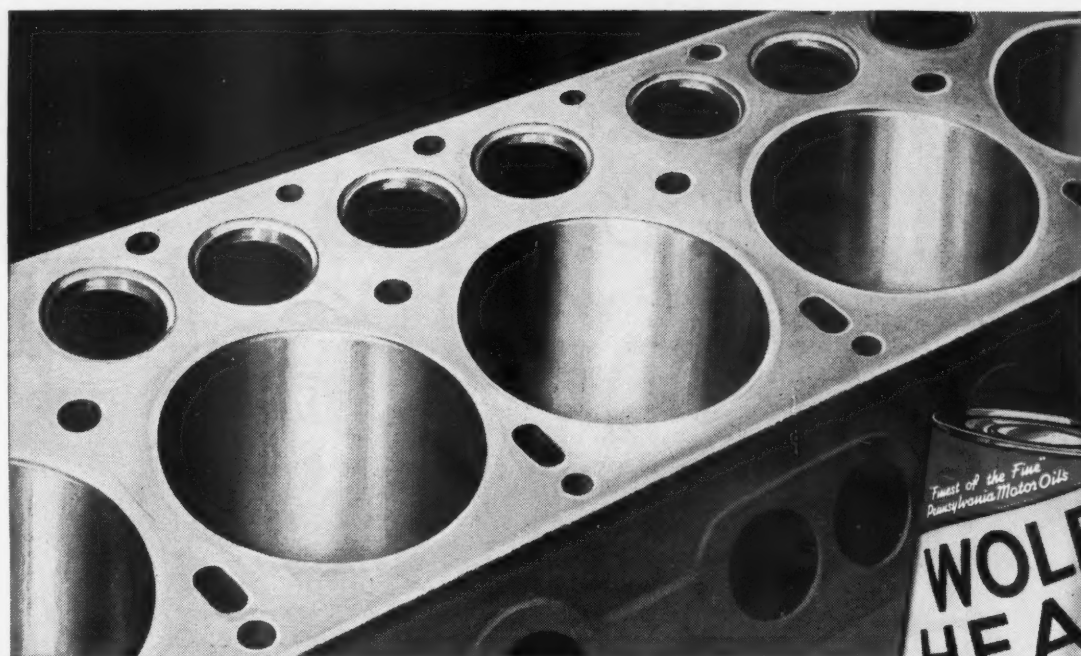
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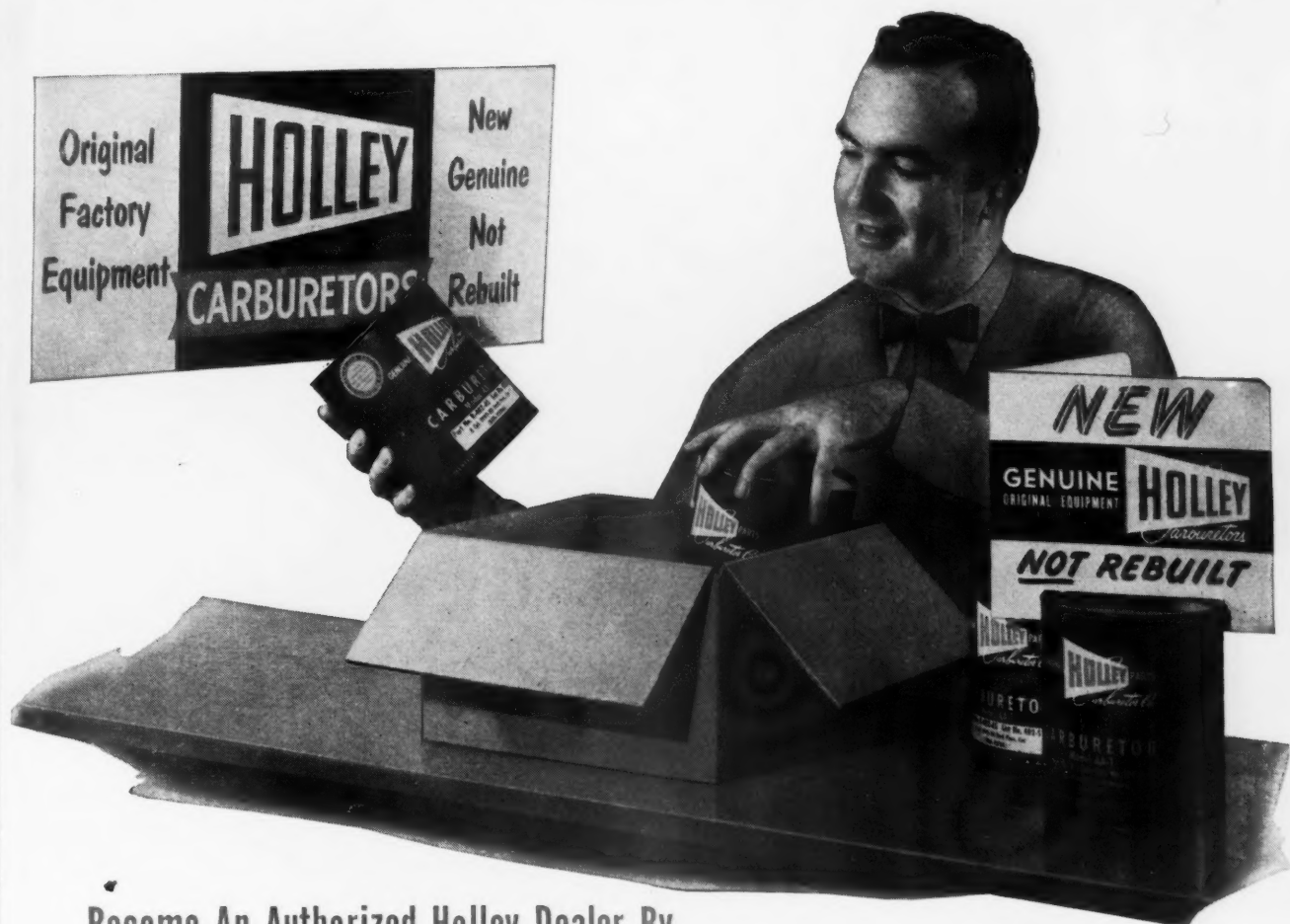
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Become An Authorized Holley Dealer By Stocking Four Fast Moving Carburetors

All wrapped up in one package, the Holley four-carburetor profit plan establishes you as an authorized Holley dealer—entitles you to a straight 40% off on all Holley parts. Included in this big profit package, are four original equipment carburetors—two for 1934 through 1948 Fords and two for 1949 through 1951 Fords; an attractive, counter display card that fits over two carburetor cans; a three-color window or wall streamer that helps to make sales and profits automatic.

All authorized Holley service dealers have a direct factory-to-dealer contact that provides new service information within days after its publication.

Contact your Holley distributor today.




5930 VANCOUVER AVE., DETROIT 4, MICH.

FOR MORE THAN HALF A CENTURY—
ORIGINAL EQUIPMENT MANUFACTURERS
FOR THE AUTOMOTIVE INDUSTRY

RT-12



TOUGH TO BEAT...



DELCO HEAVY-DUTY SHOCK ABSORBERS

For Heavy-Duty Passenger Car Service

Delco heavy-duty shock absorbers are tough to beat no matter how you look at it.

Take quality, for example. Delco shock absorbers are precision-made units that assure balanced ride control even under severe operating conditions.

Take durability. These new Delco shocks are specially designed for rugged duty . . . built to absorb the jars and jolts of the roughest roads for years on end.

Be profit-wise and recommend Delco heavy-duty shock absorbers for all cars used in heavy-duty service. You can quickly and easily replace the shock absorbers of most late-model cars and many older models with these new extra-rugged units—no drilling or special brackets required. Available now for 14 passenger car makes.



**DELCO SHOCK ABSORBERS—
A UNITED MOTORS LINE**
Available Everywhere Through
UNITED MOTORS DISTRIBUTORS

Delco Heavy-Duty Shock Absorbers are packaged in pairs, for better merchandising. (Car application data on the label.)

DELCO
HYDRAULIC SHOCK ABSORBERS



"Here in Lansing we've closely watched the swing to Auto-Lite and its famous spark plug line. Auto-Lite has consistently offered my dealers more in promotion, more in new and better sales leaders. It's by far the most active line on the market."

Ed Phillips

PRESIDENT
PAUL AUTOMOTIVE
LANSING, MICHIGAN

"Can't say I've ever seen a spark plug line that's made strides like Auto-Lite. My dealers like the Auto-Lite line because it gives them complete coverage of their market ... helps them make more profit. I'm 100% sold on Auto-Lite—it's a wide-awake line."

TEXAS

Stanton Hatch

MCDONALD AUTO SUPPLY CO.
AMARILLO, TEXAS



FROM BORDER TO BORDER JOBBERS ARE SAYING:

When you add the total score
AUTO-LITE *is the line*

...because Auto-Lite gives you the only complete line of spark plugs for maximum sales!

Plus the best advertised name in the automotive after-market — sensational, big-time radio and television "Suspense!" shows — colorful national ads in America's leading publications — exclusive AAA tie-in — coast to coast highway signs — a big, ready-made market of Auto-Lite equipped cars — sure-fire promotion and tie-in material — everything needed to draw new customers in — make 'em buy.

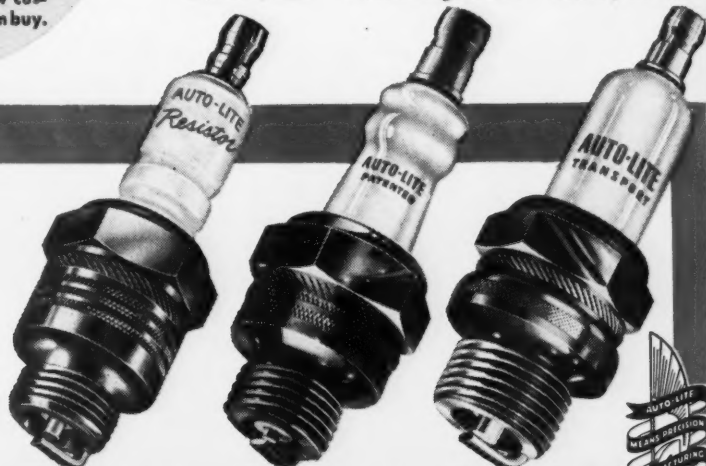
You'll find it pays to be an Auto-Lite Registered Service Dealer (RSD) ... pays in sales ... in volume ... in maximum profit. Only Auto-Lite gives you a complete spark plug line—the Standard Spark Plug, ignition engineered to give unbeatable performance ... the Transport Spark Plug for lowest cost per mile of spark plug operation in heavy-duty service ... the Resistor Spark Plug with new advantages. Capitalize on this profit-making deal that only Auto-Lite offers. See your jobber or write to

THE ELECTRIC AUTO-LITE COMPANY

Toledo 1, Ohio Merchandising Division Toronto, Ontario

AUTO-LITE
SPARK PLUGS

Auto-Lite Spark Plugs—Patented U.S.A.



RESISTOR

STANDARD

TRANSPORT

All 3 have been selected by leading automotive engineers as original factory equipment on millions of America's finest cars, trucks and tractors.



Look for "Suspense!" ... CBS Radio Mondays ... CBS Television Tuesdays

WALKER



*it pays to be
identified
with Walker*



BOOST YOUR SALES... BOOST YOUR SERVICE VOLUME

WALKER
"Individually Tuned"
SILENCERS

WALKER
OIL
FILTERS

WALKER
JACKS

WALKER
Electric
LIFTS

... MAKE MORE SALES EACH DAY



with the most powerful name in Exhaust System service

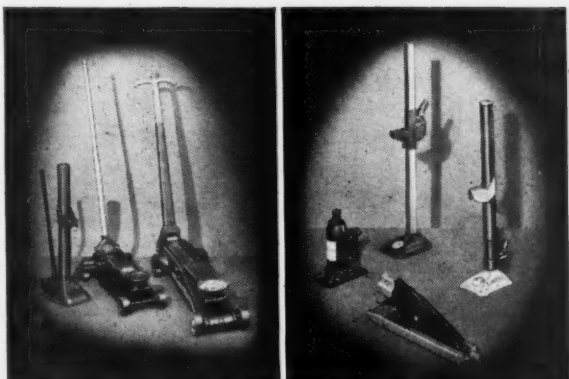
You, as an Authorized Walker Dealer, can offer your customers the finest of all exhaust system services—a Walker Silencer "Individually Tuned" to each particular car make and model—for freedom from noise fatigue . . . for safety from dangerous exhaust fumes . . . for peak engine performance. With years of consumer advertising in *The Saturday Evening Post* . . . with sales-making, point-of-sale identification . . . and with periodic merchandising programs, Walker helps you make real money in mufflers.



with America's newest, finest Oil Filter

It's easy to sell Walker Oil Filters because it's easy to show your customers how the patented Walker *Laminar* construction gives real engine protection by keeping the oil *clean* between oil changes. This exclusive principle of multiple filtration—surface filtration, depth filtration and progressive filtration—cleans oil better, keeps it clean longer. Make this your best, most profitable oil filter year with Walker—America's newest, finest oil filter.

... DO MORE JOBS EACH DAY



with Modern Jacks engineered for today's modern service

In the shop, on the driveway and out on the road, there is a Walker Jack to meet your every need. And in this *complete line*, there is a Walker Jack to serve your customers' every purpose. In each of these new, improved, deluxe jacks you will find an extra margin of strength for the unexpected . . . an extra margin of safety for greater protection . . . an extra margin of power when emergency calls.

with the lift that's always "Open for Business"

Increase service volume and profits 20% to 50% with the advanced, new Walker Electric Lift. New positioning of the support beams increases unrestricted working space by 36%. Six extra inches of working height give you even greater working convenience. From floor to car bottom, your men and equipment work free from any obstruction in the famous Walker Open Work Zone. And you can locate it wherever you want it—at the lowest installation cost of any lift on the market.

WALKER MANUFACTURING CO. OF WISCONSIN
Racine, Wisconsin



... BOOST YOUR PROFITS WITH WALKER IN 1952

THE BATTERY
THAT HAS CREATED A SENSATION
ULTRA START

LEADER OF THE FAMOUS EXIDE LINE

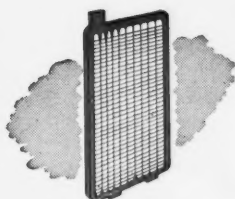


Tremendous demand for the ULTRA START gives added proof: If you want to build a sound, growing battery business, tie up with Exide. Profit from the many advantages of being an Exide Dealer—in new battery developments...in dealer service aids...in dealer sales support, which includes national advertising to 61,437,000 readers of THE SATURDAY EVENING POST, LIFE, COLLIER'S, TIME, COUNTRY GENTLEMAN, FARM JOURNAL.

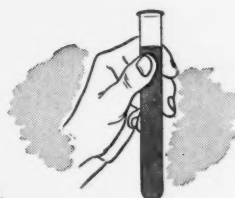


BUILT TO LAST LONGER

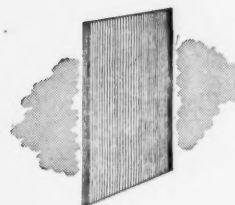
The **ULTRA START** is a NEW Exide Battery. It has many new features with strong consumer appeal. And it's jam-packed with highly charged selling ammunition. For the **ULTRA START** contributes three ways to longer battery life:



SILVIUM the corrosion-resistant grid alloy, resists a battery's most destructive enemy—grid corrosion caused by overcharging, the cause of 60% of all battery failures.



ACTIVE MATERIAL a new formula, so effective that it is possible to take full advantage of an acid solution of lower specific gravity (1.260 full charge).



PORMAX practically indestructible plastic separators. Extremely resistant to heat and acid . . . flexible and tough. Low internal resistance increases cold-weather starting ability.

PLUS Vitrex Retainers . . . Element Protector . . . Plastic Connector Shields . . . Plastic Vent Caps . . . Improved Sealing Compound . . . Shock-resistant Container.

SELL THE COMPLETE EXIDE LINE

Batteries to fit needs of all motorists

Each battery in the Exide line is top-rank in its respective class. For each is a product of Exide research laboratories—assurance of the ultimate in design, construction, performance. In addition to the **ULTRA START**, other Exide Automotive batteries are:

Exide HYCAP—preferred because of its surplus starting power, long life and all-round dependability.

Exide SURE-START—Exide's reputation builder through the years.

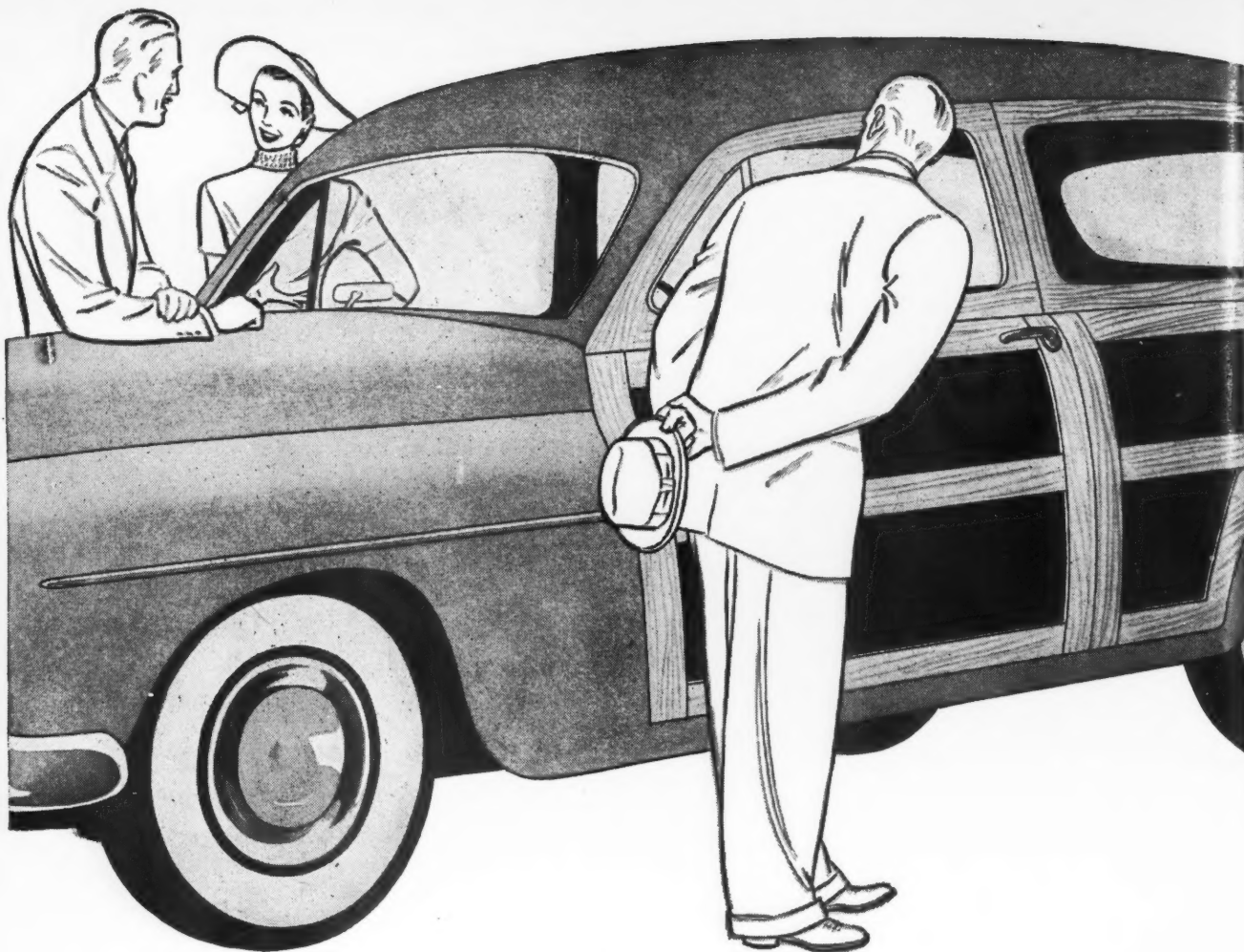
Exide STARTEX—Dollar value at a lower price, but an Exide all the way.

ORDER EXIDE BATTERIES FROM YOUR EXIDE DISTRIBUTOR TODAY

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 2
Exide Batteries of Canada, Limited, Toronto

"EXIDE", "PORMAX" and "VITREX" Reg. Trade-marks U.S. Pat. Off.
"SILVIUM" and "ULTRA START" T.M. Reg. applied for.

WHEN IT'S AN Exide YOU START



Mrs. Customer: It's just right for the family. Plenty of space for all our gear when we go camping. But one important detail is missing.

Mr. Salesman: Radio? Heater? They can be quickly installed.

Mrs. Customer: No . . . leather upholstery. With growing youngsters and a dog . . . you've just got to have upholstery that will take hard use and like it. And genuine leather is so easy to clean.

Mr. Salesman: We'll get you this car with genuine leather upholstery. Glad to do it. And in the color you like. Just a moment . . . and I'll show you the swatches.



*For distinction, durability and sales appeal nothing takes the place of **GENUINE LEATHER***

THE UPHOLSTERY LEATHER GROUP

Tanners' Council of America • 100 Gold St., New York 38, N. Y.

American Leather Manufacturing Company, Newark, N. J. • The Ashtabula Hide & Leather Company, Ashtabula, Ohio
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Want to star
with customers?

Customers will applaud your service when you let them know you use the best replacement parts. So when you install a tapered roller bearing, point out the trade-mark "Timken®". It's the most respected name in bearings.



Just tell 'em it's "TIMKEN®"



Leading makers of cars, trucks, busses and tractors use Timken bearings for original equipment. That's because Timken bearings have advanced design, are made of Timken fine alloy steel, are manufactured to extreme limits of precision and are subjected to rigid quality control at every step of the bearing production.

Over 50 years of bearing research and development have made Timken bearings number one choice throughout industry. Make sure the trade-mark "Timken" is on every tapered roller bearing you use. **VALUABLE FREE BOOK-LET!** Send today for "Timken Tapered Roller Bearings, Their Care and Maintenance" to Dept. AM-12, The Timken Roller Bearing Company, Canton 6, O. Cable address: "TIMROSCO".

TIMKEN **TAPERED
ROLLER
BEARINGS**

TRADE-MARK REG. U.S. PAT. OFF.

NOT JUST A BALL NOT JUST A ROLLER THE TIMKEN TAPERED ROLLER BEARING TAKES RADIAL AND THRUST LOADS OR ANY COMBINATION

For Top Spark Plug Performance



You can
count on

FRENCHTOWN INSULATORS

. because of constant quality control

Illustration shows inspection, by high power magnification, for surface quality. Any insulator with minute cracks, pin holes or other defects is spotted and rejected.

Test after test assures long life and dependable performance of spark plugs made with Frenchtown Insulators. There is no spot check here! Every insulator is given rigid tests for high dielectric strength and surface quality before and after glazing. Firing is accurately controlled to insure close tolerances, high heat resistance and mechanical strength. Through research, Frenchtown engineers are constantly improving the quality of the product to anticipate customers' requirements. These are the plus factors that mean fewer spark plug replacements, and savings in maintenance costs. That is why more manufacturers use Frenchtown Insulators in preference to any other make.

FRENCHTOWN PORCELAIN CO.

Sales Office, 82 MUIRHEAD AVE., TRENTON, N. J.

Factory, Frenchtown, N. J.

Q

Question: Do your lubrication jobs average \$4.80 each?

A

Answer: Nolan-Brown Motors' DO!

With the help of a thoroughly equipped Alemite lubrication department and the forceful use of Alemite "Magnet Plan" features, this Miami, Florida Cadillac dealer manages to "ring up" an average sale of \$4.80 on every lubrication job. Now enjoys a "peak" season average of over 100 cars a day ... has some 1200 steady lubrication customers on the books.



THE ALEMITE "MAGNET PLAN" will show you how!

Check these...

**Alemite "Magnet-Plan" Services
Only Alemite Gives You All 11—
Fully Tested, Fully Proved!**

1. Counsel and concrete assistance from one of the 300 Alemite Service Promotion Specialists.
2. Powerful Alemite National Advertising—year after year—pre-selling lubrication prospects for you.
3. "Business Expander" follow-up systems.
4. "Prescribed Lubrication" program.
5. Sales-building seasonal campaigns.
6. "Gusher Plan" . . . to build motor oil sales at the service bay.
7. "Sales and Service Security Plan" including the 30,000-mile guarantee for new and used cars and trucks up to 1 ton.
8. Monthly Analysis Sheets, to prove increased service sales.

Alemite Equipment for—

9. Specialized Lubrication Service.
10. Electronic Wheel Balancing Service.
11. Underbody Coating Service.

Fully tested! Fully proved by Alemite—the oldest, most reliable name in lubrication. This "Magnet Plan" is your key to more profitable service business all through the year, in *every* department. Simple, easy-to-follow, it brings you the "result-getting" ideas and services that pull in customers, build more regular business, and produce more repeat business year after year. Find out *first hand* how well these exclusive Alemite "Magnet Plan" features fit your needs, your manner of operation and most of all your desire to get *more* good-paying service business *more often*! Don't put it off. Don't delay. Call your Alemite Distributor or write Alemite, 1826 Diversey Parkway, Chicago 14, Illinois, today.

ness year after year. Find out *first hand* how well these exclusive Alemite "Magnet Plan" features fit your needs, your manner of operation and most of all your desire to get *more* good-paying service business *more often*! Don't put it off. Don't delay. Call your Alemite Distributor or write Alemite, 1826 Diversey Parkway, Chicago 14, Illinois, today.

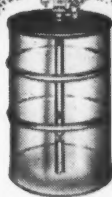
ALEMITE

UNDERBODY COATING SERVICE

Designed to *speed up*, *build up* extra sales for you in this fast growing, good paying service. Alemite provides special air-operated pumps *specifically designed* to spray heavy fibre undercoating direct from original containers. Helps you turn out more profit than ever before. Ask your Alemite salesman today!



Marshall Line Pump



Underbody Versatrol Pump



Rocket Line Pump



Vist-Drum Pump



Electronic Wheel Balancer



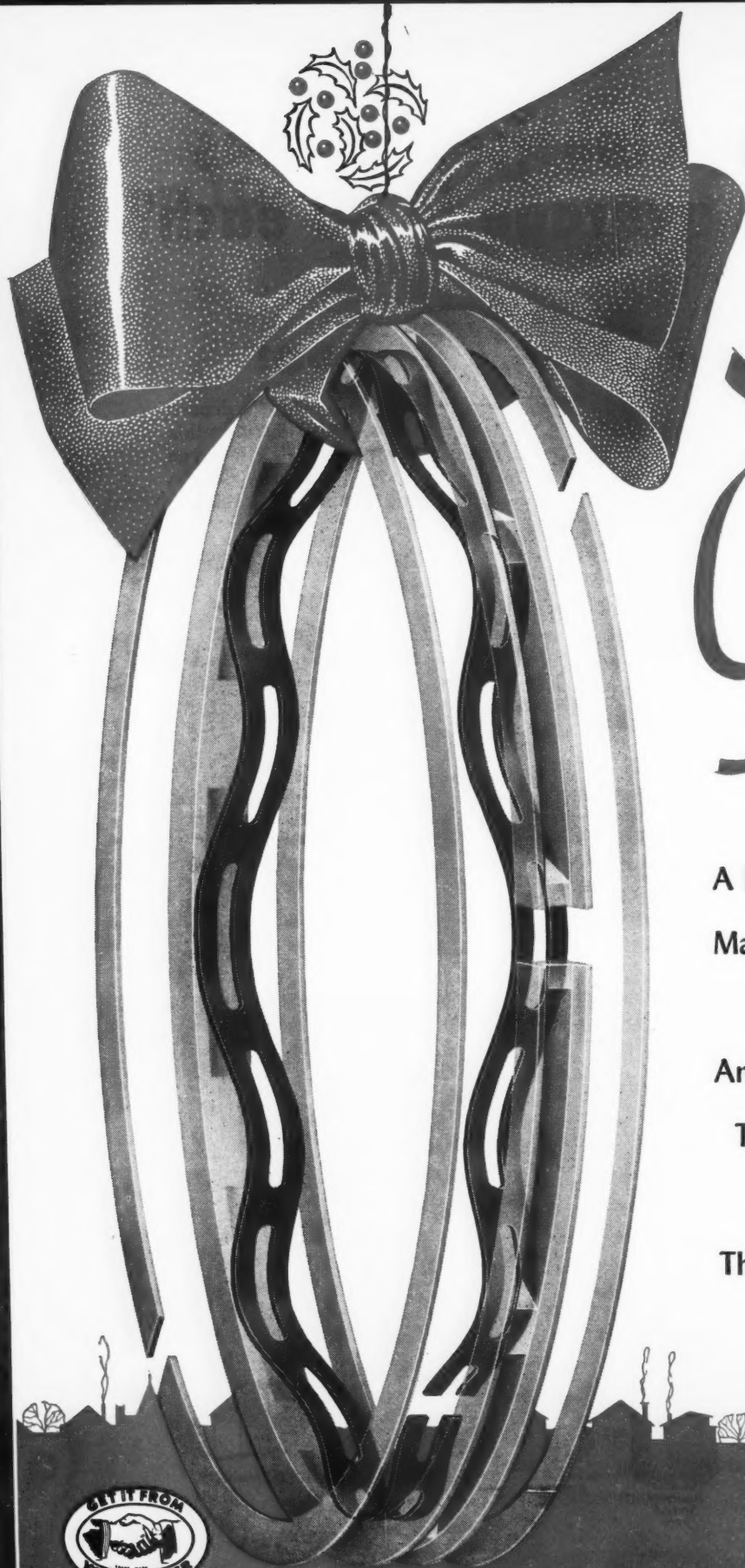
Wall Alemiter



ALEMITE

REG. U. S. PAT. OFF.

The Oldest, Most Reliable Name in Lubrication



Season's Greetings

A FULL FLOW of holiday spirit

A FULL FLOW of brightness and cheer

May FULL FLOW, wherever you hear it

Help RING in a bountiful year

And, speaking of RINGS, there's a nifty

That dealers from coast to coast sing—

It's called the Sealed Power MD-50

The ring with the FULL-FLOW SPRING



SEALED POWER CORPORATION, MUSKEGON, MICHIGAN

Sealed Power Piston Rings

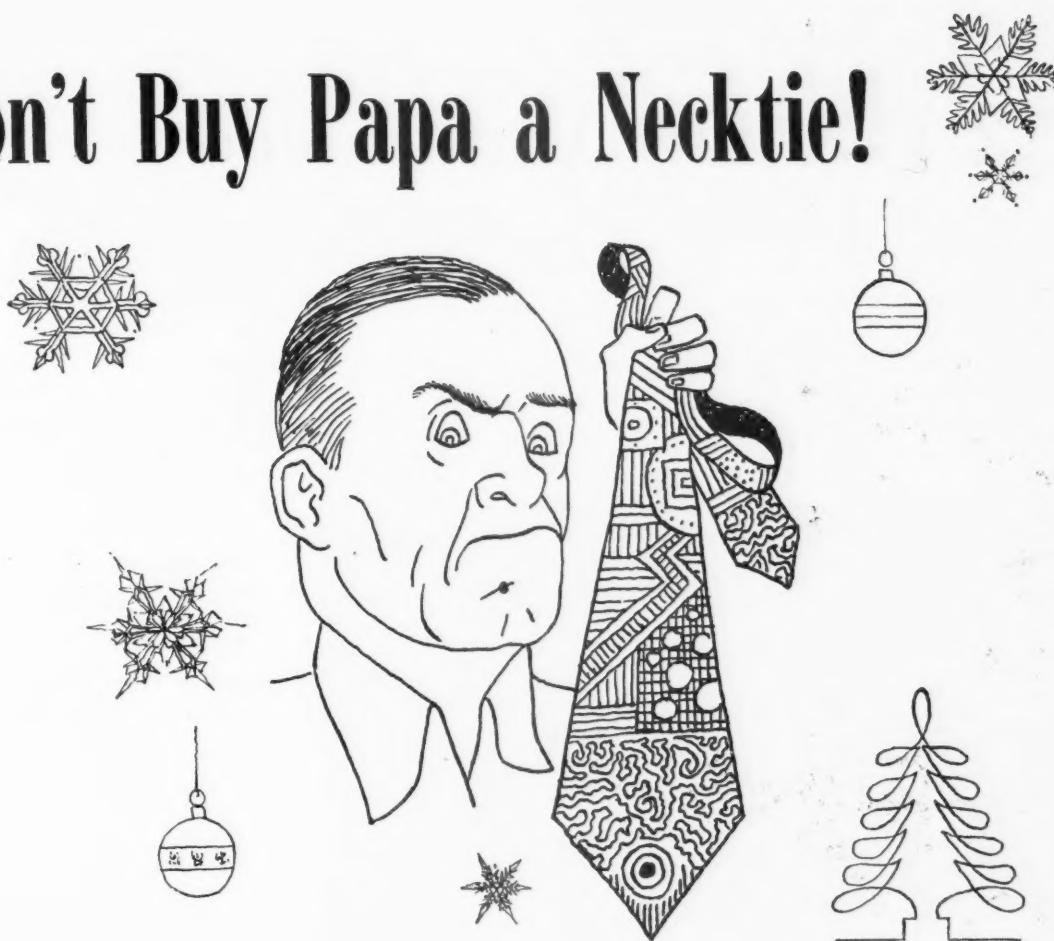
BEST IN NEW CARS

BEST IN OLD CARS

Chilton's MOTOR AGE

An EDITORIAL

Don't Buy Papa a Necktie!



SURE as you're born—every other retail merchant is profiting in the Christmas buying boom. Everyone but the automotive retailer. Folks are paying loud sums of folding money for loud neckties, while that nice old guy who pays to keep the family car rolling just wishes that you would sell something automotive for Christmas.

Why not open a gift department? Display

some merchandise. Get someone who can wrap Christmas packages. Sell service certificates. Sell seat covers, tires, radios, heaters, fog lamps, cigarette lighters, batteries. Take a lesson from your neighbor-merchants who are selling everything from a ton of coal to hand-tinted neckties. And, a Merry Christmas to you and yours! Convince 'em that Papa's tired of neckties!

Frank P. Tighe

EDITOR

NEW Scene

1952 Pontiac Announced



The Pontiac Motor Division has introduced a combination of mechanical features designed to increase performance, acceleration, and safety in its 1952 models. Major item of interest is the new Dual-Range Hydra-Matic transmission which provides a choice of two high driving ranges at the option of the driver. This drive is offered in combination with Eight- and Six-cylinder engines with compression ratio upped to 7.7 to 1, boosting output of the Eight to 122 hp.

while the Six is raised to 102 hp.

In addition, Pontiac makes available a new rear axle ratio of 3.08 to 1 with Dual-Range drive to provide smoothness and quietness on the highway, together with increased fuel economy.

The 1952 line includes—Super DeLuxe Catalina, Deluxe Catalina, Four-door and two-door models, Station Wagons, and Sedan delivery. The former Streamliner series and coupe models are dropped.

Dual-Range Hydra-Matic, fre-

quently discussed in recent months, has a choice of two high range ratios, selected by the driver. The highway driving range, the "DR" position on the left on the control, brings into play the usual four speed transmission range. This range, coupled with the economy rear axle, reduces engine speed at high road speeds, reduces noise, and is said to improve fuel economy.

Italians Place One, Two In Mexican Road Race

The second Mexican Pan-American Race was won by Pierro Taruffi and second place went to Alberto Ascari, both driving Ferraris. First prize money was \$23,180. Tony Bettenhausen, American champion, got really hot on the last day when he hit a 113 mile per hour average for the 230 mile final length, thereby wiping out his own 110 mph road race mark established in his big Chrysler the day before. Although it wasn't a case of too little, it was a case of too late and in spite of his terrific speeds, Tony did not finish in the first ten. These are the first ten drivers and cars. First Taruffi, Ferrari; 2—Ascari, Ferrari; 3—Sterling, Chrysler; 4—Ruttman, Mercury; 5—Treveux, Packard; 6—Teague, Hudson; 7—Rogers, Cadillac; 8—Crawford, Lincoln; 9—Solana, Oldsmobile; 10—Korf, Nash.

Chrysler Line for 1952

Features Many Refinements

Refinements throughout the line, rather than revolutionary engineering innovations, characterize Chrysler's 1952 models. Special features heretofore available only in certain models have been extended to cover the entire line. Dimensionally, all body styles are the same as corresponding models of the 1951 line.

All models save those in the Windsor and Windsor DeLuxe lines are powered by the 180-horsepower V-8 FirePower engine. The Windsor and Windsor DeLuxe are powered by an improved version of the Chrysler six-cylinder "Spitfire" engine, with horsepower stepped up to 119.

Hydraguide steering will now be available on the Windsor and Windsor DeLuxe lines. It will be optional at extra cost, except in the Crown Imperial.

Entirely new this year, and available at extra cost on all models, is "Solex" tinted glass in windshield and all windows. This glass is claimed to have the ad-

vantage of absorbing the greater part of the wave lengths of solar radiation that are not useful for visibility, thus keeping the car cooler on sunny days; of being more visible from outside and thus better able to carry out the body contours of the car, though hardly distinguishable from ordinary clear glass from inside; of minimizing the fading of upholstery and seat cover fabrics and of absorbing a significant percentage of the ultra-violet rays that contribute to glare.

The bore of the improved six cylinder engine remains unchanged at 3 7/16 inches but the stroke has been increased from 4 1/2 to 4 3/4, giving an increase in cubic displacement from 250.6 to 264.5. The compression ratio remains at 7 to 1. With this compression ratio and the increased displacement, the gross brake horsepower increases from 116 to 119 at 3,600 r.p.m. and the gross torque from 208 to 218 pounds feet at 1,600 r.p.m.

NPA Alters Quotas For Second Quarter

Despite the protests of all passenger car manufacturers except Willys-Overland, Nash, and Kaiser-Frazer, NPA is expected to put into effect at the beginning of the second quarter of next year its revised percentage of industry allotments for individual companies. The reshuffled percentages will give K-F, Nash, and Willys-Overland a larger share of the industry's total production than they now have in order to make allowance for new cars they introduced since June, 1950. The cars are the Nash Rambler, the Henry J, and the new Aero passenger car to be introduced by Willys soon. K-F would get the largest increase, stepping up from 1.55 per cent of the total to 2.47 per cent.

NADA Committee Concerned Over K-F Mail Order Sales

The Industry Relations Committee of NADA expressed concern over the announcement in the press of the proposed plan of mail order distribution of passenger automobiles by the Kaiser-Frazer Corporation. George F. Ziesmer of Mankato, Minn., chairman of the committee, pointed out "that this method of retailing and merchandising of passenger cars and regardless of promises to the contrary, the purchasers of these vehicles may suffer from the lack of availability of replacement parts and good service. This will, of course, increase the cost to the motoring public."



Chrysler Dealer Council Committee . . .

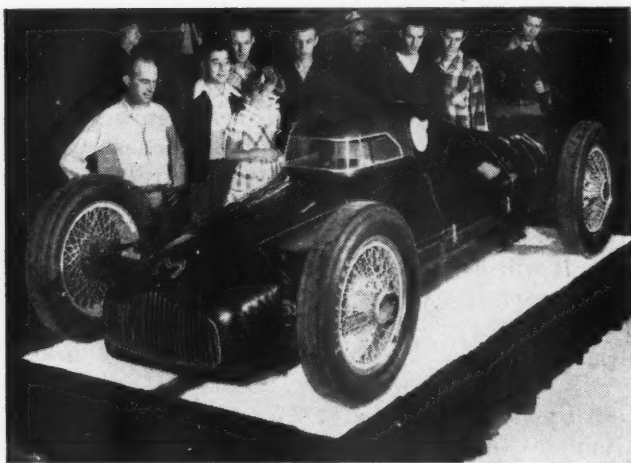
At the invitation of Joseph A. O'Malley, General Sales Manager of Chrysler Division, 45 Chrysler dealers met recently in Detroit and formed the Chrysler Dealer Council.

The executive committee pictured here are left to right: front row: Charles G. McKimmie, Richmond,

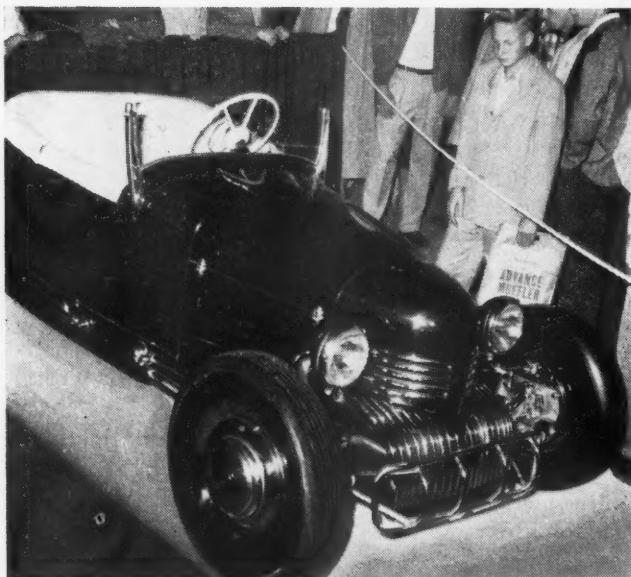
Va., vice - chairman; Burch E. Greene, Los Angeles, Calif., chairman; H. B. Ransom, Fort Worth, Tex., recording secretary; back row: Arthur Jones, Hastings, Nebr.; L. M. Stewart, St. Louis, Mo.; Lyle F. Harris, Worcester, Mass.; C. L. Holt, Minneapolis, Minn.

—news scene—

► Among the custom cars displayed at the five-day Motorama in Los Angeles was this Morgan Three-Wheeler. The car is powered by a 4 cylinder, 25 hp Ford Anglia engine, and is capable of nearly 65 mph top speed. Handling qualities on corners is said to be excellent with this design.



▼ Spectators at the Motorama saw 168 exhibits, which included 91 special cars and cycles. Here's a combination of Model T, Model A and V-8. The front end (except for the nose and hood) is Model T, the rear is from a '29 Model A and the powerplant is a Ford V-8. Owner of this job is Mike Lopez.



► Many of the 100,000 automobile fans at the exhibition were attracted by this Pontiac 6 powered Lakester. The engine is set at a 30-degree cant in the rear, and has four carburetors. The car, built by Eddie Miller, Jr. and Sr., of Los Angeles, has a tubular frame and straight-tube front axle.

▼ The Wasp and Skorpion, owned by John Wills and Ralph Roberts, Pasadena, have Fiberglas bodies. The Wasp was originally designed to house a motorcycle engine, but now has a single cylinder Mustang unit. The Skorpion has a body, available in kit form, which is built to fit any Crosley chassis.



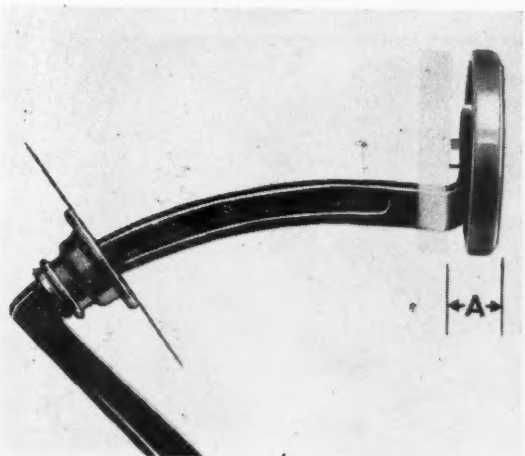
My Brake Job Notebook

Here are some valuable notes on brake work, compiled from the experience

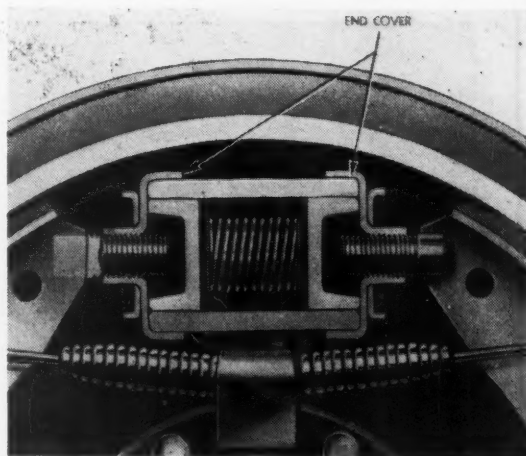
of repairmen for the benefit of repairmen . . . by Jack Montgomery,
Technical Editor

WHEN doing a brake job, a mechanic should have a list of musts to check on each and every job. Brake noises can usually be traced to one of the following causes: poor brake adjustment, looseness of the attaching parts, poor alignment of the brake shoes. If the brake adjustment isn't right, it means the brake shoes may not have

the proper clearances between the shoes and the drum at the heel ends of the shoes. This results in partial contact of the lining with the drum and causes vibration or noise. If looseness exists at the anchor bolts, at the brake backing plates, or at the wheel cylinders, the shoes may shift and vibrate when the brakes are applied.



Allow at least $\frac{1}{2}$ inch clearance between toe-board and pedal. Too little clearance will prevent the piston from returning to its stop causing brakes to drag.



Wheel cylinder end covers, on Chevrolet models up to 1951, should be removed and lubricated so that they can be turned freely.

... Notebook

Continued from Page 37

Cleaning and Checking

After wheels are removed apply compressed air to the drums and shoes to blow off all the dust. Check for grease and brake fluid leaks. Check the drums for scoring or heat cracks. Check the drums for out-of-roundness. They should be within .005 inch. Never turn a drum more than .030 of an inch.

On every brake job all anchor bolts and vacuum plates should be checked for tightness, as loose brake support plates will cause the shoes to shift and vibrate when the brakes are applied. Loose shoes will also give that noise. If there is more than .005 movement at the anchor bolts, they will vibrate.

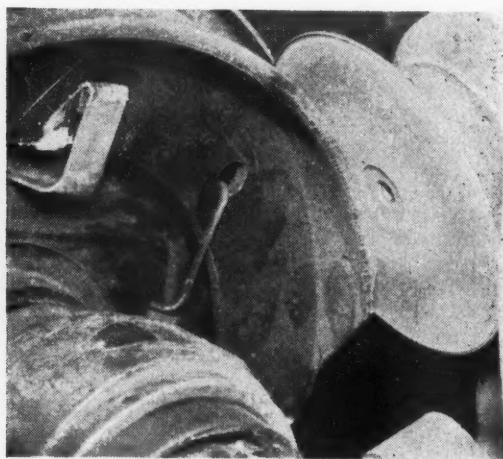
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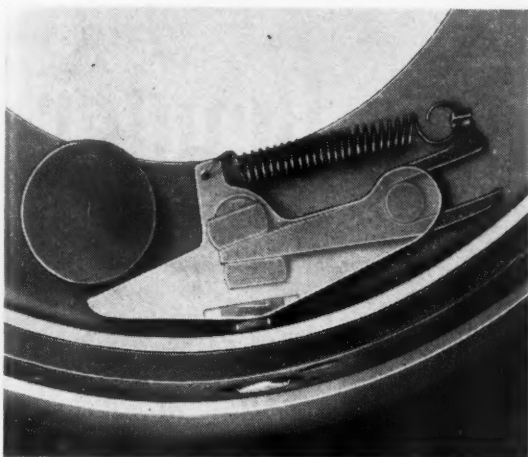
Install rubber spacers on the eccentrics and brake shoe anchors to stop the shoes from vibrating



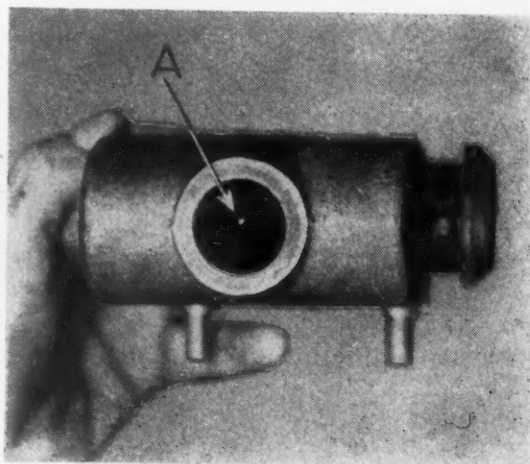
Cutting the lining on Chrysler brakes. Cut a diagonal groove on bonded lining and diamond grooves on riveted lining using two blades in the hacksaw.



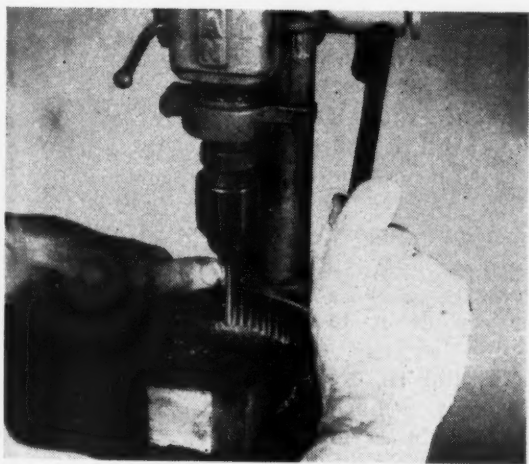
Using special equipment to grind lining to the drum contour. This equipment insures perfect contact to the drum.



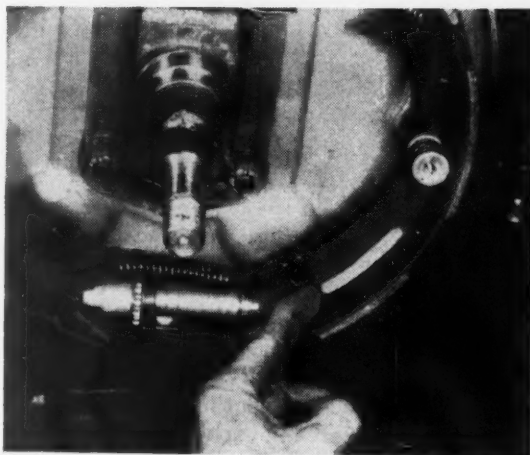
View of the automatic take up used on Studebaker cars. This device eliminates the need for minor brake adjustments.



If brakes drag at all the wheels, check for a clogged by-pass hole (A). If this hole is blocked, the brakes will not release.



Drilling holes to slot a brake shoe from a 1951 Buick Roadmaster. These slots are an accepted method for preventing squealing.



The secondary shoe after having been slotted. After the holes are drilled, the slot is ground out with a small circular grinder.

Tommy Goes Off on a Bender

An epidemic of bent push rods, all of them on the same valve,
had Tommy going around in circles until Pop set him straight

by Charles M. Kenyon, Managing Editor

IT WAS mid-morning and the bright December sun, though lacking warmth, gave a cheery aspect to the interior of Pop O'Neill's repair shop. Tommy Winters whistled as he snapped the hub cap on the rear wheel and stood up, the job completed.

"There you are Mr. Fisher," he said cheerily. "Ought to be good for another six months. That inspection is certainly a wonderful thing."

"Sure. For you mechanics," needled Mr. Fisher.

"Of course it is," Tommy agreed. "We mechanics find lots of cars that need repair, and besides it makes us feel safer when driving home to know that all the other cars on the highway are in good mechanical shape too." He started to open the big over-head doors so that Mr. Fisher could back out.

"We're all on your side too," Mr. Fisher grinned back. "After all, Tommy, I don't know anyone who's against safer highways. Do you?"

Before Tommy had closed the doors, a 1948 Chevrolet convertible came driving up. "Shall I drive it right inside?" called the driver.

"Yes," nodded Tommy and stepped out of the way as the cute little blonde switched off the engine.

"Hi, there," she said.

"Haven't seen you since you went away to college," replied Tommy. "How do you like it?"

"Oh it's wonderful. I'll bet you're sorry you didn't come along too."

"Not me," said Tommy emphatically, "this is the life for me. I'm no engineer; I'm a mechanic."

"Glad to hear it," she said. "I've been hoping I'd find a mechanic who could fix this car. So naturally I thought of you. Drove it all the way down from Collegeville. It's got an awful knock whenever it's pulling."

"Oh," said Tommy, "you've got a lot of carbon all right and may need a valve job."

"If you say so," Jane shrugged, "that's what it needs. I haven't the slightest idea myself, but I know there's something wrong with it. How long will it take you to finish it once you begin?"

"About five hours," said Tommy. "Maybe a little less."

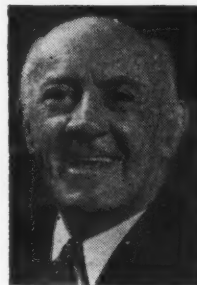
"Can you do it today?"

"Yes, I think so," replied Tommy. "Larry will be back in a few minutes and Pop should be back from town about noon. You're lucky it's a light day today."

"Dad's going to meet me here," Nancy broke in. "I was pretty sure you could take the job." She smiled coyly. "So I thought he could drive me home and then drop me this afternoon and I could pick the car up again. You see I have to be at church rehearsal by four-thirty."

"Are you in the Christmas pageant again this year?" asked Tommy.

"Yes, I'm Mary."



Pop O'Neill



With a quick smile and mumbled thanks she hopped from the car, raced across the sidewalk and up the stone steps beneath the graceful arches of the lovely ivy-covered church.

They chatted along for a few minutes when Mr. Medford picked up Nancy and Tommy drove the Chevrolet into the back room and began to go to work. Although he was only an apprentice, he had done valve work before and worked steadily, and he thought well, at the job.

When Pop came back he nodded his approval at Tommy's work and let him continue. "If you have any trouble, Boy," he said as he started back toward the office, "let me know. Other-

wise just keep right at it. Larry will keep an eye out on the front today."

At last the work was complete and Tommy started the engine, warmed it up a bit and began to adjust the valves. On number three he couldn't get proper clearance. He'd just about get the clearance he wanted then apparently the gap would open up again. Finally there was no take-up left on the adjusting screw.

(Continued on page 104)



Hopalong Handyman Stalks a Squeak

Getting rid of a squeak can be
so easy when you don't know how



1. The homespun mechanic goes after some squeaks that have puzzled and worried and plagued him for weeks. It's dark and he's cramped, the blood's gone to his head. He hastens to look 'neath the fender instead.

4. He kicks at the fender. He curses a streak. He raves and he rants but he can't find that squeak. He's bound and determined to find that noise yet. This canary's the toughest one he's ever met.





2. His position's more proper, his vision far better. He knows what he's doing. He's a real squeak getter! A search all around for a sign of the sound. With mallet in hand he starts in to pound.

5. So he starts in to shake and to wallop his heap, but lo' and behold, there's not even a peep. The noise is plum gone; not a trace can he find, unless he's gone crazy. Is he losing his mind?



3. Well, what do you know? See our little friend now! He's as mad as a bull and he can't decide how he'll find this darned squeak that has driven him crazy. In fact, he's so peeved that his mind's going hazy.

6. Well, wacky or not, the job is completed. His car is desqueaked—he's still undefeated! But one little thing which is really a stumper—where *was* that noise he unsqueaked with his thumper?



"Take Jobs That Other Shops Don't Want"



Servicing foreign cars, such as the Jaguar XK-120 shown above, presents no problem once a little experience is acquired.

Servicing foreign or other non-conventional cars can be profitable business, reports this independent shop owner

by Ernest W. Fair

WHEN W. Dean Versaw took over Capitol Automotive in Lincoln, Nebraska, in 1946, he decided to take on jobs which other shops would shy away from. This principle has worked successfully, for he now has a shop that is always busy but always seems to

have room for one more customer.

"Take, for example, the matter of sport cars," he explains.

"Any independent garage man that overlooks the sport car business is overlooking a good bet," he says, "the number in every section of the United States is growing every month.

"Most garage owners shy away from such cars as the Jaguar and the MG. They have no reason to. You have only one English sport car in volume and that's the MG with the Jaguar a close second. All of the rest are exactly like American cars in every detail.

"The sport car business is very good business because the men who own these cars are

going to give them the finest of care if they have to spend their last cent in doing so. Few are mechanics. They are on the alert for a garage man with an understanding of their car and top quality workmanship to offer them and they are

(Continued on page 94)

FLOOR PLANS

FOR BETTER SERVICE

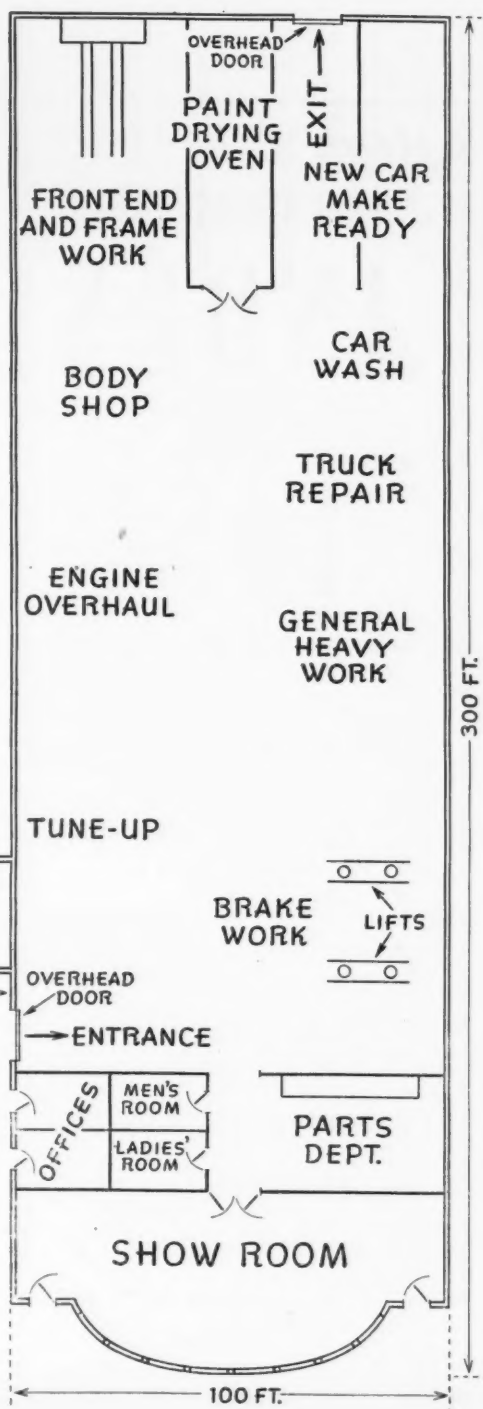
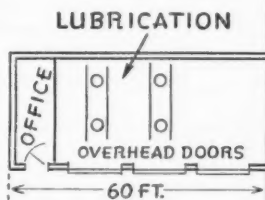
Wilson's Shop is a Money-Maker



Stuart Wilson, shop layout makes it easy for the lubrication customer, with the separate lube department, visible to the left, which is readily accessible.

MANY car owners are in the habit of getting their lubrication jobs done at gas stations because of the convenience angle, so the new Stuart Wilson building in Dearborn, Michigan, features a lubrication department which is separate from the main shop. Now much of this lubrication business is secured and, consequently, service business has been increased. Lubrications are handled as a separate service at Wilson's, although the customer does not have to go through the regular service procedures.

Opened in June, 1946, the new plant represented an initial investment of \$300,000 in land and buildings, and has been enlarged recently. The used car lot and the 7,000 square foot shop are located just down the street, but this is to be moved next door to the main plant at an estimated cost of \$25,000. Wilson's has 50 service employees, including the parts department, and writes an average of 1500 orders a month. \$15,000 per month is taken in in customer service. In 1950 the firm grossed close to five million dollars. Having been a dealer since 1940, Mr. Wilson is well aware of the growing importance of adequate service facilities as a direct tie-in with new and used car sales, and has designed his plant with this in mind.





FEATURE ARTICLES ON—BRAKES • TUNE-UP • TRANSMISSIONS

Chilton's

MOTOR AGE

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The expansive parking lot at Uptown Chevrolet Co. Notice the "Silver Joy Dispatchers" on the cars.

The "Silver Joy Dispatcher"



An effective signal system has been developed by this dealership which had problems resulting from a large, but full parking area



The control tower is the "brain" of this dispatching system.

IN an automobile dealership which services a large number of cars per day, there has always been the problem of identifying and dispatching cars. For several years, Cecil Potter, Service Manager of Uptown Chevrolet Co. of Pasadena, California, has been developing an idea for a "distant marker system" for his Service Department to help solve this problem. The "Silver Joy Dispatcher" is the result of these years of experimenting, and it is now in operation.
(Continued on page 116)

OPS Sets New Prices For Upper Tank Replacement

Thousands of steel top radiator tanks have sprung leaks and the factories involved have authorized necessary replacement. Here's how to do it and how much to charge

UNDER dollars and cents ceilings effective now repair shops may charge manufacturers of automobiles, trucks, buses and tractors the retail price for a certain specified service. Although these charges to the manufacturers normally cover approximately half the cost to retail customers, industry practice has been to pay up to the full retail price for replacement services when the service is performed on a large number of vehicles—so large that repair shops have had to use a considerable amount of their facilities normally used for other customers.

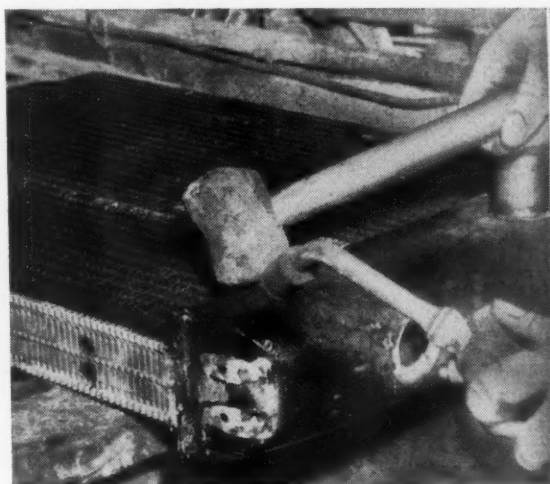
To conserve a scarce defense material, steel was substituted for brass in the manufacture of radiators. A very large number of these steel radiator upper tanks have sprung leaks and must be replaced under warranty service contracts.

These tanks were used on about one-half million cars and trucks which were delivered in 1951.

The OPS has now set new ceiling prices for changing the tanks. On passenger cars, one-half ton, three-quarter ton, and one-ton trucks, the price has been set at \$7.20; for one-and-half ton trucks and larger trucks, buses and tractors, the price is \$7.80. These prices do not include removing or installing the unit.

The pictures show the procedure used in doing this job. The filler neck is heated and removed and then the sides are removed. To remove the tank, apply heat all around the solder joint and at the same time pound the tank lightly, using a rubber mallet to break the joint. Before applying the new tank, clean and tin the joining surface to insure a good joint.

Removing the tank, using a soft mallet to tap it off as the solder is heated.



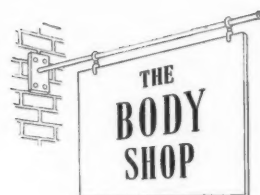
The new tank ready for installation. At the top left is the upper outlet neck.



17 Paint Problems

34 Causes

6 Cures



Keep this handy list of paint troubles and remedies,
but use proper procedures and it will never be needed

WHEN a freshly painted surface develops flaws, the painter's first—and sometimes most difficult—task is to find out what caused the trouble. If his diagnosis is correct, the remedy should not present any problem.

Alligator checks and line cracks may be caused by spraying one coat before the previ-

ous coat has been thoroughly dried. These marks may also be caused by improper stirring of the paint, spraying too thick a film, the use of an inferior thinner, temperature stresses or movement of body panels. The only remedy for cracking and checking is to strip the paint to the bare metal over an area larger than the section which has the flaw and refinish that area.

Alligator checks and line cracks



Blistering



Arthur H. Nellen, Jr.

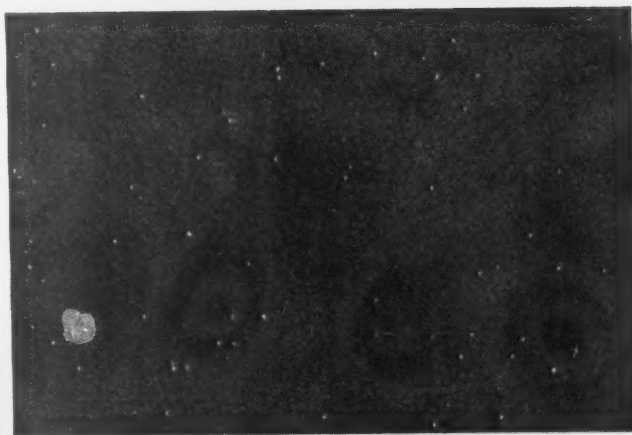
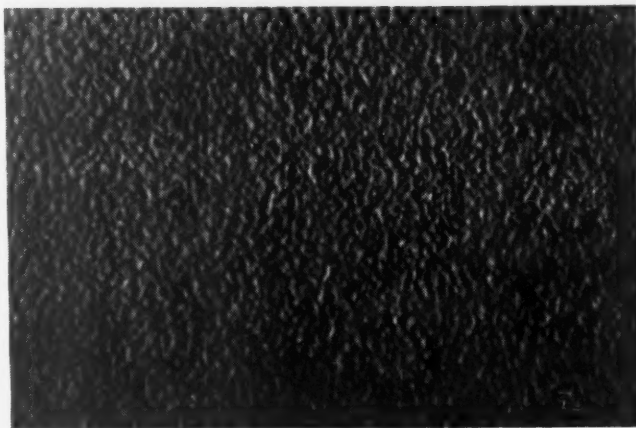
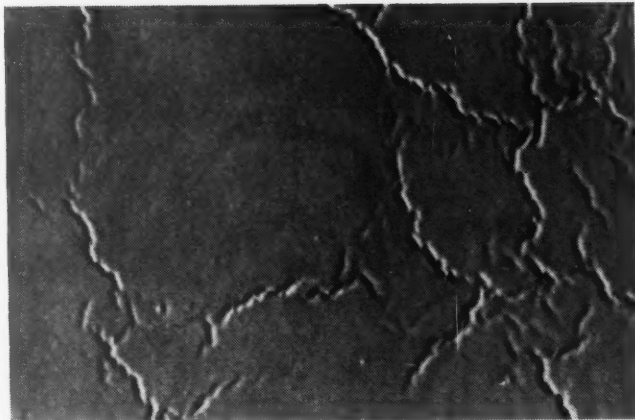
Service Editor

Bleeding, the color change due to the seeping through of the old color, can be avoided by the use of a sealer. If bleeding occurs, put sealer over the affected area and proceed to apply the color coats in the usual manner.

Blistering is another problem which is sometimes encountered in refinishing. Usually the trouble is rust on the metal, due to improper cleaning, but there are other reasons for blistering. Foreign materials between the coats can cause these pimples or bubbles to break through. If oil or moisture is carried with the air to the spray gun, this fine material may be deposited on the surface. Also when spraying, if there is moisture present under moldings, the air spray may force it out and onto the surface. Be sure that the surface is clean and dried before applying the finish, and drain the condensation water from the air tank frequently. Once blistering has occurred the only cure is to strip the paint down to the metal and reprint the area properly.

Blushing is a cloudiness that forms on the paint surface. It usually is caused by spraying when humidity is excessive, although sometimes it is due to an unbalanced condition in

(Continued on page 68)

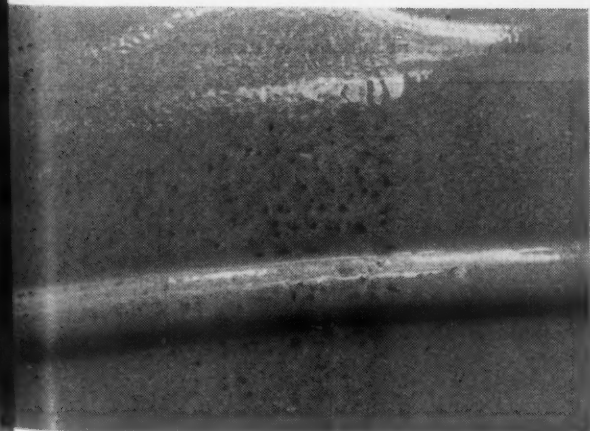


TOP—Lifting

CENTER—Orange peel

BOTTOM—Pinholing

Illustrations courtesy E. I. du Pont de Nemours & Co., Inc.





Working Wonders

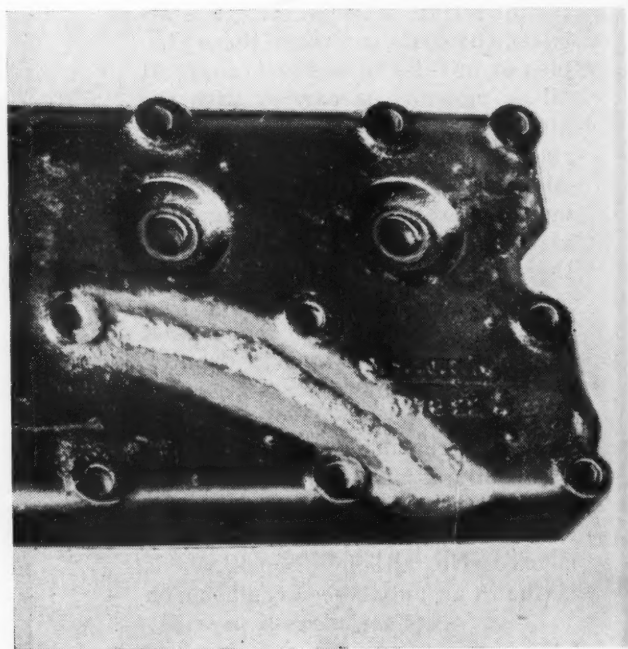
New developments in the field of welding make many jobs, once thought impossible,

WELDERS, welding equipment manufacturers and suppliers play an ever important part in keeping cars in running condition. Great strides have been taken in doing this. Today almost everything can be welded. Many experts claim that there is no problem in welding white metal, aluminum, magnesium, or any of these metals, although years ago it was almost impossible to do anything with these materials.

The camshaft (shown) was taken out of a bus engine which had been in service a long time and a replacement part was impossible to obtain. Rather than tie the engine up, cams were built up, layers of welds were added to the lifts and the lift was machined to size. Before the weld was attempted, the cam tips were thoroughly cleaned to remove all traces of grease, oil, dirt, scale or oxide. After pre-cleaning, each cam to be welded was heated until the surface began to sweat, while at the same time rubbing the end of the flux-coated rod on the surface so that some of this flux would adhere to weld area. The block (shown) was successfully welded and has been in service for some time. The crack was first veed out thoroughly, degreased and cleaned.

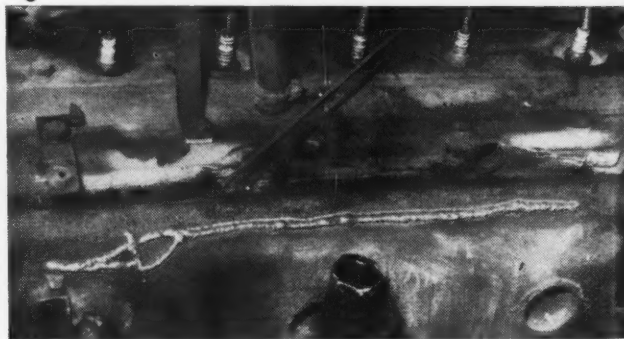
At each end of the crack a hole was drilled to prevent the crack from spreading any further. Then without pre-heating of any kind and therefore without having to dismantle the motor, the welder deposited several beads, starting in the center, skipping back and forth depositing about one inch of weld first at one end and then the other. Then the center was done, and so on until the crack was closed. In this manner it was possible to keep the heat in the base metal at a minimum which, in addition to the usual load average used with the welding rod, helped to

(Continued on page 118)



View of cracked cylinder head which was torch welded at 354 deg. F. without preheating.

A block, cracked due to freezing, which was arc welded without preheating or dismantling.

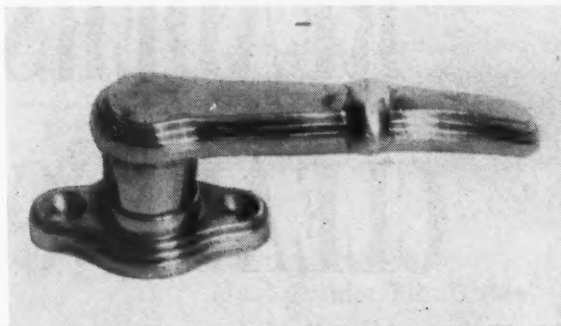


With Welding

by Jack Montgomery, Technical Editor

ible, now just routine welding technique

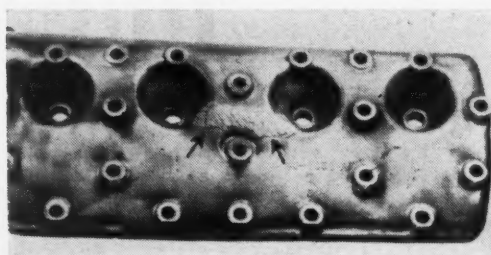
Photos Courtesy Eutectic Welding Alloys Corporation



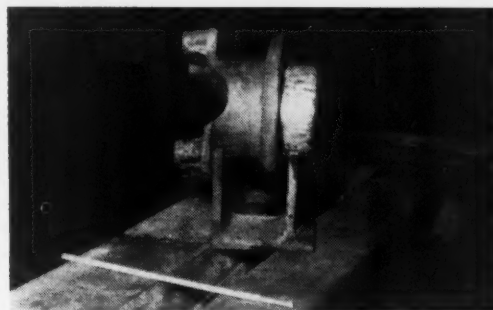
A white metal door handle which was repaired using Eutectic's welding method.



Restoring a camshaft by building up worn cams and grinding them to original shape.

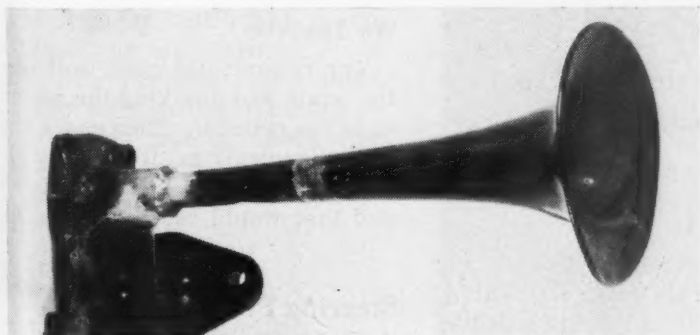


A cracked aluminum head which was welded using the low temperature welding principle.

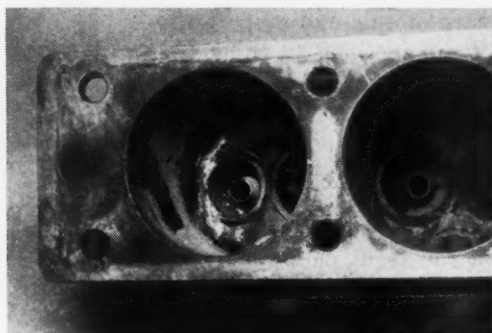


Universal joint flanges can be restored by building up the worn surface and machining.

A white metal horn base which was repaired using EutecRod 196. This rod has a very low melting point.



Welding the inside of a Crosley cylinder. Note the small space the welder has to operate in.



READERS CLEARING HOUSE

Trouble

- Frazer burns oil after ring job
- Caddy engine in a Ford
- Packard has a knock
- Chevrolet steering problem
- Noise in Ford Truck engine
- Question on dual manifolds
- Pontiac point gap changes

Frazer Burns Oil After a Ring Job

A 1949 Frazer which we service uses one quart of oil every 40 miles. There are no external leaks.

What We Did:

Installed new rings; ground the valves; checked the vacuum pump. Also installed two new sets of rings and a fuel pump. Believe it might be sucking the oil through the intake guides. Submitted by: Mr. Harry Gnod, Bayonet Point Garage, New Port Richey, Florida.

We Suggest:

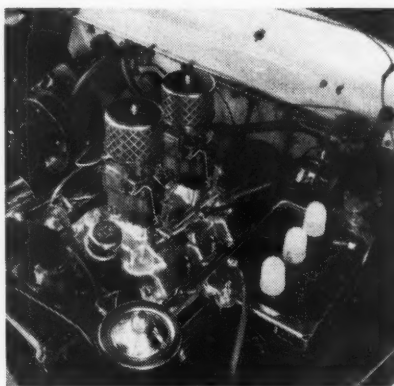
If you are suspecting the oil going up the valve guides, I would suggest that you install valve guides packing and that would take care of this end of it. However, I am inclined to think that this engine has an oil leak and only way you're going to find it is to tie a piece of oil cloth underneath and take it for a ride and see how much is accumulated on it. A lot of these jobs had a bad leak at the front motor plate and it was necessary to remove the timing case cover, timing chain and etc. to get back of this plate. When installing this gasket between the plate, it should be

coated with a heavy compound so as to make a good seal.

Cadillac Engine and Hydra-Matic in Ford

We have had several inquiries on installing a Cadillac overhead valve engine in a 1950 Ford.

Bob Rudolph, a mechanic for Scott Smith Cadillac in Philadelphia, has just completed the changeover on his own 1950 Ford.



He purchased a 1951 Caddy engine and a 1950 Hydra-Matic transmission.

The changeover consisted of lowering the tie rods, shortening the drive shaft and fitting a Cadillac radiator core. Shift controls are from an Oldsmobile. The complete changeover took 60 hours.

Packard Has a Knock In Number 3 Cylinder

We have a 1939 Packard "8" which has a knock in the No. 3 cylinder.

What We Did:

We put a new rod and bearing and wrist pin in. Also after having the journal ground due to burned out rods, we took up on all the mains and checked all the other rods. Still there is a bearing knock in the No. 3 piston. I can short out the No. 3 and the knock goes away. I double checked the bearing and found it O.K. Submitted by: Sheppard's Auto Repair, 256 Park Street, Upper Montclair, New Jersey.

We Suggest:

Try removing the rod and piston again and checking the piston fit to the cylinder. Then check the rod alignment, as it is possible that this rod might be twisted and that would cause this knock.

Steering Problems on A 1949 Chevrolet

We're having trouble aligning the front end of '49 Chevrolet.

Chilton's MOTOR AGE, DECEMBER, 1951

e Shooting Problems

- Dodge has chronic spark knock
- Discussion on battery ratings
- Hydra-Matic has an idling whine
- Correcting Buick tappet noise

by Jack Montgomery, Technical Editor



What We Did:

The car was checked on two different front end machines and still it won't hold the road, especially dirt roads. The caster, camber, toe-in all came within specifications and the steering tie rod ends are in good condition. On pavement it drives fine but not on rough surfaces. We checked the springs, shackles and everything was found in good order. The car has about 27,000 miles on it. Submitted by: Marion Richel Behnken Ford Motor Company, Anita, Iowa.

We Suggest:

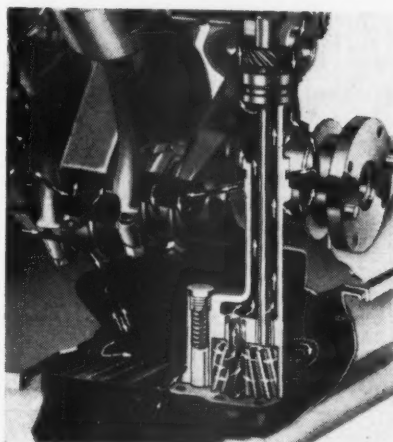
Since the front end comes within specifications I suggest tightening the rear spring U-bolts and also checking the axle shaft end play. Another item which occurs to me is the air pressure in the tires. If they are over-inflated, the car will have a tendency to sway on dirt roads. Make sure the steering worm and sector is in good condition and is adjusted properly.

Tracing down a Noise In a Ford Truck Engine

A 1948 Ford 6-F3 truck engine Series "H" in our shop has a knock at idle speed.

What We Did:

We did a ring and valve job on this engine hoping to eliminate the knock, but it didn't. We renewed the wrist pins, rod bearings, valve springs, and aluminum timing gear. We removed the ridge, aligned the rods, and checked the piston clearance. The knock cannot be shorted out. By holding a yardstick against my ear and the other end against the engine I can hear the knock at the timing case, a kind of a light clicking. I can hear it on the fuel pump a little heavier. Could the knock be coming from the oil pump? Submitted by: Jack Duckett, Jack Duckett Garage, Imnaha, Oregon.



We Suggest:

I would suggest checking the distributor gears first. This can be done by removing the distributor cap and rotating the rotor back and forth at the same time listening to the noise. To check the relief valve, it is necessary to remove the valve chamber cover. Remove the check valve spring and the plunger and examine the plunger for pits and scratches. I would also try another fuel pump.

What About These Dual Intake Manifolds?

Will or will not a custom dual intake manifold use more fuel than a stock manifold? Submitted by: E. C. Boswell, 2167 11th Street, Akron, Ohio.

We Suggest:

Installing a dual manifold should improve your gas mileage about one per cent, providing you use the proper carburetor combination and the engine is tuned properly. I would also recommend milling .040 inch off the cylinder head. Then with the dual manifold and the milled head you would gain about 5 hp.

Pontiac Point Gap Won't Hold Its Adjustment

We have a 1936 Pontiac on which the point gaps change when hot and cold.

What We Did:

We tried setting the gap when it was hot and when it was cold. Submitted by: Bert Muellenmeister, Motorcraft Auto Service, 110 New York Avenue, Huntington, N. Y.

We Suggest:

Replacing the distributor shaft bushings should correct this condition. I would suggest removing the distributor and installing it on the test bench and when checking the cam angle, put some pressure on the cam to see how much play or how much the angle will change. Also check the distributor shaft to make sure that there are no twists in it as this would also cause a similar condition.

(Continued on page 90)

1951 New Passenger Car Registrations by Makes by States*

STATE	Buick	Cadillac	Chevrolet	Chrysler	Crosley	De Soto	Dodge	Ford	Henry J	Hudson	Kaiser-Frazer	Lincoln	Mercury	Nash	Oldsmobile	Packard	Plymouth	Pontiac	Studebaker	Willis	All Others	Total
Alabama	Sept. 280	45	892	74	9	67	243	718	54	40	21	19	171	108	208	37	485	272	182	19	5	3,940
Arizona	Sept. 3524	607	11350	1072	52	722	2482	9818	676	529	326	238	2372	932	2277	411	5330	3084	1892	246	75	48,015
Arkansas	Sept. 168	28	362	47	6	29	92	296	14	31	20	9	88	85	90	25	187	90	104	6	14	1,701
California	Sept. 1424	280	4126	476	44	240	787	2984	145	396	160	94	842	483	879	209	1489	1009	923	80	117	17,107
Colorado	Sept. 204	39	613	70	4	69	187	486	40	38	32	18	125	75	136	26	378	182	151	26	2	2,901
Connecticut	Sept. 2054	401	6976	647	31	653	1568	5459	425	439	362	115	1335	663	1343	247	3835	1832	1161	252	11	29,809
Delaware	Sept. 2224	909	5812	1310	25	914	1922	4168	121	632	211	224	1525	1299	1749	437	3076	2184	1733	196	602	31,271
District of Col.	Sept. 23856	8349	62638	11780	219	7300	15261	49771	1892	6287	2085	1867	17548	9486	17994	3802	30367	19984	16049	1708	4474	132,717
Florida	Sept. 366	49	536	143	8	62	215	441	16	61	19	32	169	104	185	51	778	219	177	13	11	3,296
Georgia	Sept. 3304	621	6635	1281	88	605	1857	5720	241	1138	273	246	1838	1002	1901	481	3613	2121	1233	288	61	34,547
Idaho	Sept. 392	121	1003	162	4	135	444	677	69	101	76	42	230	210	278	85	541	362	255	29	88	5,282
Illinois	Sept. 4416	1325	11106	1961	74	1299	3985	8384	1090	1246	789	332	2804	1603	3603	979	6153	3827	2617	417	599	58,619
Indiana	Sept. 76	22	257	23	1	19	83	152	11	17	7	12	45	47	61	9	116	76	89	4	8	1,138
Iowa	Sept. 953	230	2842	272	22	179	733	2247	138	191	116	79	489	262	733	130	1137	937	696	46	36	12,468
Kansas	Sept. 128	51	579	59	3	38	115	344	22	32	6	14	75	52	119	38	392	180	74	6	9	2,533
Kentucky	Sept. 1454	534	4579	714	9	363	1445	3231	231	332	86	134	738	382	1294	248	3533	1482	580	73	133	21,545
Louisiana	Sept. 580	196	1455	271	37	190	514	1472	187	128	78	81	487	235	438	131	1069	512	346	104	16	8,647
Maine	Sept. 5576	1895	14016	2173	393	1207	3988	12069	1518	1058	661	599	4295	1538	3573	1033	7705	4637	2300	819	1076	72,128
Maryland	Sept. 626	102	1537	135	9	113	422	1155	115	76	41	37	289	145	354	58	617	477	293	371	232	76,848
Massachusetts	Sept. 6152	1109	17617	1557	101	857	3883	15027	1033	863	704	525	4316	1141	3550	770	7648	6233	3037	149	29	10,261
Michigan	Sept. 190	41	380	68	8	355	969	2872	163	571	313	116	919	688	931	293	1622	1256	1196	27	10	16,776
Minnesota	Sept. 1639	302	3629	535	21	761	2255	4730	161	672	271	161	1384	1185	1632	430	3676	2029	1357	73	354	38,788
Mississippi	Sept. 2350	721	5451	892	2	516	1081	33	92	63	32	63	492	586	706	154	1526	955	1123	48	18	13,431
Missouri	Sept. 23296	5641	54873	8703	226	6619	17843	42694	2006	9051	3325	1435	12566	8400	15438	4203	34958	17027	10246	694	1691	280,539
Montana	Sept. 824	233	2492	365	13	361	848	1878	133	261	145	68	486	385	624	148	162	149	29	10	12,511	
Nebraska	Sept. 8901	1830	26867	3443	159	2701	6532	20828	1433	2879	1509	536	4266	3450	6244	1485	13976	8077	9129	509	79	125,371
Nevada	Sept. 548	100	1612	208	2	172	516	1081	33	92	63	32	492	586	706	154	1526	955	1123	48	18	13,431
New Hampshire	Sept. 5664	1068	17739	2350	39	1429	4612	14107	463	1196	947	294	3538	2240	3688	826	8952	4970	3079	186	15	77,662
New Jersey	Sept. 533	107	1420	190	9	137	423	1137	62	128	68	40	333	272	333	94	781	504	344	41	7	6,868
New Mexico	Sept. 4502	829	12686	1640	64	1024	3151	10767	583	1249	769	257	2866	2018	2777	705	6134	3667	2259	209	31	58,187
New York	Sept. 338	61	1333	114	7	125	395	884	39	69	40	19	197	202	273	63	588	356	342	31	7	5,483
North Carolina	Sept. 335	642	11938	1312	47	826	2826	10021	415	615	357	146	193	202	273	63	588	356	342	31	7	5,483
North Dakota	Sept. 363	77	1207	122	8	153	319	986	46	51	49	16	199	103	259	67	659	380	338	32	4	5,437
Ohio	Sept. 2932	716	11462	1160	54	940	2223	9585	465	450	497	161	1905	633	2099	454	5333	3065	2125	222	38	46,538
Oklahoma	Sept. 92	22	298	38	2	65	129	279	28	24	20	11	70	51	69	25	226	96	73	17	4	1,659
Oregon	Sept. 1402	292	3844	487	38	429	1101	2795	267	343	216	106	762	483	1012	204	2192	1160	659	166	35	17,994
Pennsylvania	Sept. 438	76	1504	191	7	153	478	1041	129	148	66	55	274	243	327	93	878	414	323	25	41	6,908
Rhode Island	Sept. 3977	790	14293	1932	57	1142	3638	10716	1092	1422	517	327	2584	1654	3143	835	7440	3708	2303	284	204	62,038
South Carolina	Sept. 795	176	1752	308	17	361	828	1451	95	199	83	59	404	480	730	149	1242	730	547	70	103	10,577
South Dakota	Sept. 8278	2027	21702	3484	186	3175	7176	17072	1033	2188	954	597	4819	3367	8122	1324	13933	7173	4435	583	620	112,778
Tennessee	Sept. 1865	518	5567	536	12	529	1670	4657	202	337	272	149	1038	912	1493	287	2472	1875	875	59	69	25,394
Texas	Sept. 21959	6125	62688	6649	100	5043	14549	58871	2795	4997	2966	1300	12232	6290	15232	2856	27956	21003	7445	581	271	281,918
Utah	Sept. 841	134	1977	460	2	357	754	1213	33	90	53	56	536	219	634	219	1536	811	588	13	3	10,529
Vermont	Sept. 6893	1398	20977	3226	35	2151	5416	15906	639	1486	1247	358	3762	2082	4650	1341	11219	6082	4026	255	64	93,213
Virginia	Sept. 253	54	789	85	1	65	175	555	36	17	25	16	162	63	168	31	423	231	186	12	2	3,339
Washington	Sept. 2748	477	8113	885	27	504	1496	6152	400	268	283	130	1452	448	1404	292	3944	2004	1385	136	22	32,568
West Virginia	Sept. 751	175	2586	286	12	310	663	1996	67	115	80	60	534	535	579	113	1685	797	453	40	14	11,831
Wisconsin	Sept. 7390	1647	26686	3055	72	2549	5468	19774	747	1289	886	445	5387	4080	5089	1164	14355	6388	3435	380	95	110,381
Wyoming	Sept. 176	38	392	68	3	34	114	318	6	53	21	8	96	48	113	27	234	122	95	29	1	1,992
Alabama	Sept. 1468	340	4247	628	12	344	1038	3309	142	629	193	92	873	368	1133	277	1915	1185	853	249	5	19,300
Arizona	Sept. 386	72	908	158	1	86	256	624	17	46	35	26	180	97	243	45	478	353	243	26	3	4,283
Arkansas	Sept. 3730	738	9325	1472	43	677	2065	8342	202	837	405	204	2145	901	2069	562	5131	3135	1730	215	18	43,944
California	Sept. 52	16	108	25	1	13	44	41	1	12	2	3	27	7	41	11	57	25	27	9	3	524
Colorado	Sept. 384	143	925	241	6	106	277	703	24	112	30	37	281	72	280	153	521	236	270	49	7	4,857
Connecticut	Sept. 93	12	228	31	1	27	87	188	21	41	19	6	44	43	75	15	133	92	65	16	10	1,244
Delaware	Sept. 963	184	3011	327	15	201	793	2073	214	342	198	60	534	469	713	185	1384	949	547	166	74	13,382
District of Col.	Sept. 1138	312	2858	435	15	401	1247	1985	178	292	158	103	635	479	774	256	1465	1130	681	105	95	14,742
Florida	Sept. 11179	3090	26904	4902	144	3285	10646	21636	2461	3304	2128	779	7007	3609	8101	2412	15078	10661	5553	1052	744	144,675
Georgia	Sept. 181	28	304	51	6	27	94	285	3	14	11	14	78	49	89	18	166	114	106	16	5	1,659
Idaho	Sept. 1274	226	2882	429	35	249	672	2066	107	304	113	97	768	307	746	179	1282	960	677	141	16	13,528
Illinois	Sept. 2862	865	5775	1040	31	1100	2948	4271	346	600	359	180	1363	1209	2076	585	3390	2400	1468	243	313	33,424
Indiana	Sept. 28686	8057	61826	11981	325	10645	26507	48449	4360	6627	4388	1867	14706	9049	21378	5380	35878	23980	12365	2339	2807	341,600
Iowa	Sept. 606	117	1578	169	13	168	58															

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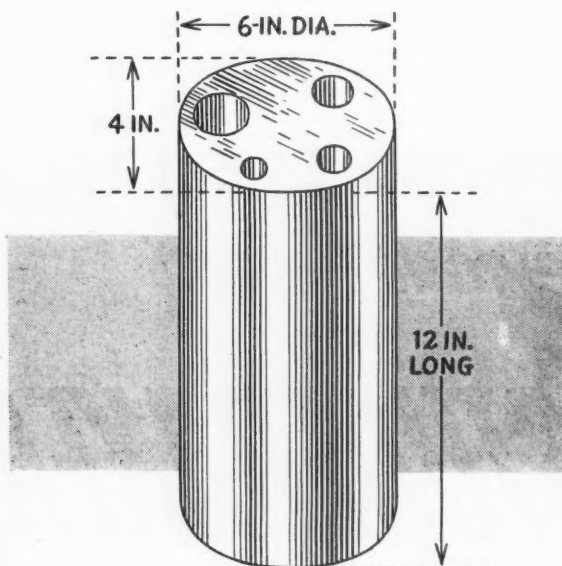
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Best Kink of the Month



Simple Rig for Distributor Work

For working on distributors that are taken out of cars, we use a very simple unit to hold them in position. Obtain a ten pound piece of round metal stock about four inches high and six inches in diameter. Varied size holes are drilled through the block. The shafts of the distributor fit in one of the holes bringing the distributor to perfect working height. We also use the block for working on carburetors. Two bolts through the carburetor flange into two of the holes in the block hold the carburetor firm for dismantling and assembling. *David Guterman, 2310 White Plains Road, Bronx, New York.*

Installing Freeze Plugs In Chrysler Products

We always run into a lot of trouble when installing the lower plug at the oil dip stick guide. We could get the old one out but there is no room to hammer the new one in place due to insufficient clearance

between the side of the block and the fender apron. What we do is jack the left side of the car up and insert a discarded steering worm and shaft between the fender and the frame. This will just line up with the plug. Strike the shaft a couple of blows and the plug will stay forever. *George Hall, Lans-*

downe Auto Service, Lansdowne Ave., Philadelphia, Pa.

A Hint on Changing Knuckle Support Pins

Frequently when changing the knuckle support pins and the bush-
(Continued on page 60)

UNPRECEDENTED DEMAND FOR
"2 IN 1" CHROME SETS MET BY
EXPANDED PRODUCTION FACILITIES!

IT TOOK US NINE MONTHS to catch up to the ever-increasing demand for Perfect Circle's 2-in-1 Chrome Set. Popularity like that is a testimonial no one can doubt!

MECHANICS LIKE THE NEW IDEA of selecting the spring pressure best suited to the engine *after* they look at the cylinders. They like the double protection of solid chrome on both the top compression and oil rings.

THEY LIKE the smooth, instantly responsive feel of an engine equipped with 2-in-1. And most of all, they like the unqualified, complete customer satisfaction now recognized as a part of each 2-in-1 installation.

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PISTON RINGS

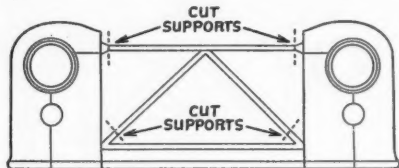


The Standard of Comparison

ings, the lower threaded bushing is found to be extremely tight and difficult to remove. The chief difficulty usually lies in the tendency of the wrench to slip on the narrow hexagonal surface. This tendency can be eliminated completely by using a box wrench, held in place by threading the old pin into the bushing with a flat washer on it sufficiently large enough to draw against the outer surface of the wrench. This method is equally effective either in the vise or the car. *J. C. Ward, Jr., Madison Garage, Madison, New Hampshire.*

Changing Engines in a 1950 Nash Rambler

Here's how we exchange an engine in a Nash Rambler. Disconnect the motor from the transmission bell housing and remove the motor from the top side. Removing the



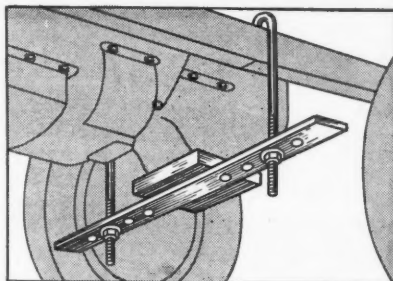
radiator and grille. Then hack saw the radiator and cross fender support. Remove and replace the motor. Replace the support by welding a little paint on the welds and the job is complete. *Nicholas Riccinti, Saunders Settlement Road, Route #2, Lewiston, N. Y.*

Installing Turn Light Signals or Back-up Lights

In installing turn signals or back up lights, I use a universal Hood control cable (the heavy duty preferred). I start in the trunk in the same place the factory wires are located and use a push and swirl motion until the cable comes out behind the instrument panel. I tape the ends so that they will not catch as they are pulled through. This job works best if one man pulls in the trunk and another feeds from the front. This method does away with having the wires strung under the car and coming in contact with the weather. *Brown's Garage, R. F. D. #4, Freeport, Illinois.*

Device Secures Engine With Transmission Removed

We have found that you can tow a car on the road with the automatic transmission removed. Use



two hooks, 10 inches long, 4 inches thick, with a 2 inch thread. Clamp the hooks on either side of the frame. Then take an iron bar, 34 inches long, 1/2 inch thick, and drill six to eight holes, 3 inches apart, at 25, 28, 31, and 34 inches. Place a block of wood, 15 inches long, in the middle of the iron bar. This device will support the motor while removing the transmissions. The threaded hook permits the motor to be raised or lowered as you like. *W. E. Crick, 302 East 7th Street, Hopkinsville, Kentucky.*

Spinning the Oil Pump For Pre-Lubrication

An easy way to pre-lubricate a new or rebuilt Chevrolet engine prior to starting is first to remove the distributor and then chuck a 1/4 inch rod (welding rod) into a 1/4 inch air or electric drill. The rod should be six to eight inches long, flattened on one end to fit into the oil pump drive shaft slot. Insert the flat end into the oil pump drive slot and spin the pump for about three to five minutes with the drill. This will fill the oil pan troughs with oil, oil the main bearings, rocker arm shaft, and in fact everything but the cylinder walls. *Herbert Kay-nish, Will County Spring Service, 1 So. Bluff Street, Joliet, Ill.*

Kink Cuts Time on Chevrolet Valve Jobs

When installing new seals on Chevrolet valves, I found that these could be fixed very easily by taking an old valve guide and grinding the

ends and then filling the inside with a plug 1 1/8 inch long. This will save many hours on future valve jobs as it seats the seals in their proper slots. The seals have been in use on all Chevrolet valves since 1948. *Frank Miklavic, P. O. Box 35, Presto, Pa.*

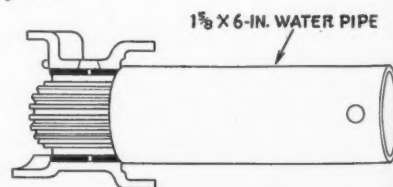
Removing Oil Pans on Studebaker V-8 Engines

Instead of taking off the complete steering bell crank shaft and bracket, to remove a Studebaker V-8 engine, I just disconnect the two tie-rods leading from the front wheels to the bracket. Then I remove the reach rod from its pitman arm end. This enables the bell crank to turn far enough to the left to clear the oil pan for removal. *Francisco Liebermann, 4516 No. Rodgers Avenue, Baltimore, Maryland.*

Tools Made for Replacing Extension Housing Bushings

To replace the bushing in the extension housing on 1949 and 1950 Fords and Mercurys with conventional transmission or overdrive, drop the driveshaft, take a cold chisel and knock the grease seal out. Use a bent push rod from a Chevrolet, ground to a point. Then drive it into the extension housing between the bushing and the housing. Then put a kink in the bushing with a pair of needle pliers.

Cut a piece of 1 5/8 inch water pipe, 6 inches long, as shown in the sketch. The bushing just fits on this pipe section with about .003 inch clearance. A hole is then drilled in the other end in order to put a pry bar through the pipe. This makes it easier to remove the pipe from the extension housing after the bushing is driven into place.



It is not necessary to unhook the emergency brake and if the car is jacked up from the rear, no grease leaks from the transmission. *Wilmont Smith, Bedford Motor Sales, Bedford, Pa.*

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The Finest Auto Undercoating
Ever Made!

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WITH NR 508

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- **BETTER PROTECTION**...**NEW FENDIX** offers better adhesion and cohesion. Won't flake off, slump or flow. Has greater resiliency and flexibility...expands and contracts without cracking or separating.
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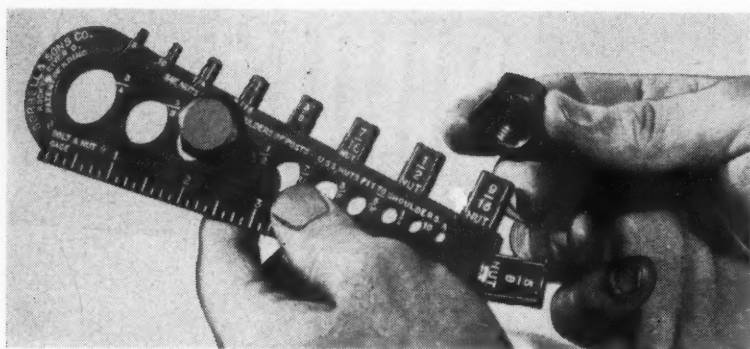
Eastern Division, 201 Davison Chemical Building, Baltimore 1, Maryland
Western Division, 725 Second Street, San Francisco 7, California



NEW

PRODUCTS

FOR FURTHER INFORMATION USE POSTCARD



◀ 464. Bolt and Nut Gage

Sorrell & Sons Company are marketing a new pocket-style plastic bolt and nut gage to measure bolts and screws from No. 8 through $\frac{3}{4}$ inch diameter, and nuts from No. 8 through $\frac{5}{8}$ inch diameter. The plug gages tell not only the diameter of the nut but also the thread type.

▼ 463. Water Leak Detector

Allen Electric & Equipment Company are manufacturing a new water leak detector. It is used by mixing a small amount of fluorescing powder in the cooling system water and passing an ultra-violet light beam over the area to be examined. Thus, seepage is quickly discovered because of its bright glow.



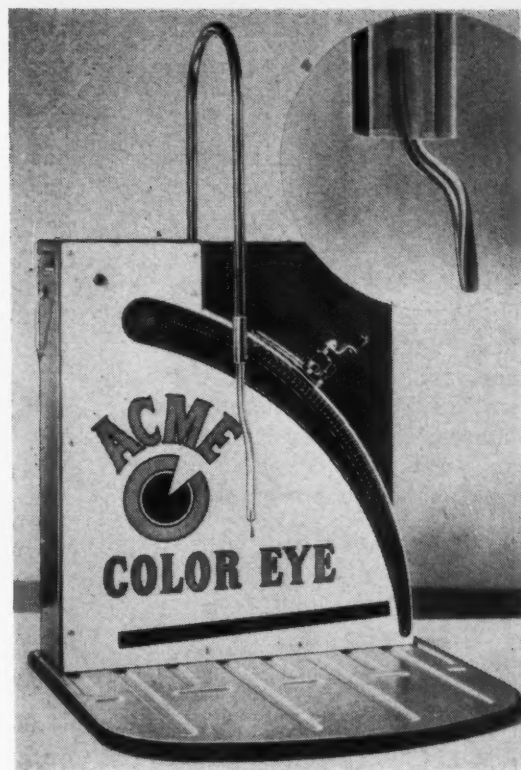
▼ 465. Car Watch

Maar Automatic Watch Corporation announces the Maar "patent" self winding car watch. The normal motion of the steering wheel and car actuate the pendulum weights which wind the mechanism. A red arrow in the crystal may be turned to the departure time when leaving on a trip.



SHOW WINDOW

FACING NEXT PAGE

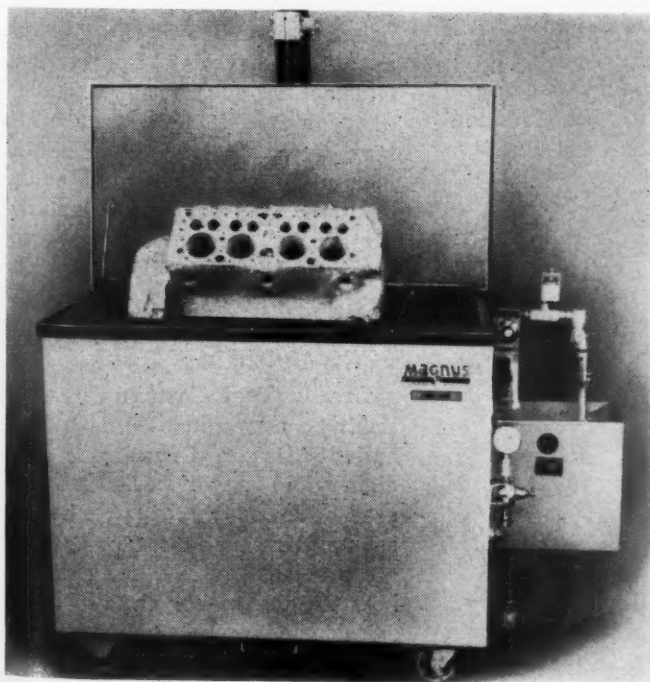


► 466. Paint Mixer and Matcher

Acme Quality Paints, Inc., announces an improvement on Acme Color Eyes, the Micro-Tip. This metal fixture on the Color Eye's light beam rod extends below the illuminated rod into the paint. The rod need not touch the liquid, thus prolonging its life. Color Eye is an instrument for the intermixing of tinting colors.

▼ 467. Parts Cleaning Machine

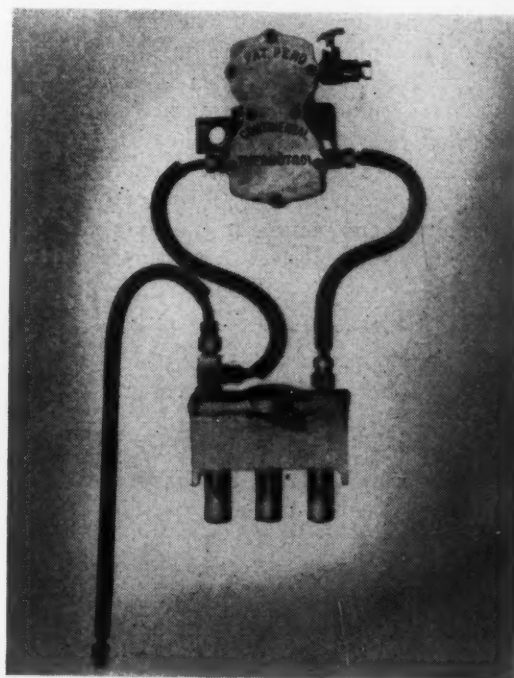
The Equipment Division of the Magnus Chemical Company, Inc., announces the 1952 Magnus Aja Lif Parts Cleaning Machine, for automotive, truck and bus engine blocks and disassembled parts. The flick of the operating lever brings the platform to the top of the tank out of the liquid for inspection of the loading and unloading.



▼ 468. Temperature Control

Continental Thermotrol Company, Inc., has developed the Thermotrol Oil Temperature Regulator, designed to maintain the proper oil temperature for all types of operation. The heating unit, through which oil passes, carries the heat to transferring plugs which are inserted in the

(Continued on page 64)



New Products Continued from page 63

exhaust manifold. When the oil reaches the proper temperature, the thermostat unit shuts off the oil flow into the heater.

469. Analyzer

Choldun Manufacturing Company announces a fuel system analyzer, designed to check the entire fuel system and mileage of internal combustion engines. The unit tests actual operating fuel pump flow, pressure and mileage,



leaking or plugged gas lines, carburetor needle and seat, fuel level and fuel pump diaphragm. In cases where the fuel system of the vehicle is frozen or inoperative, the analyzer can be attached to the vehicle, manually filled and used as an auxiliary fuel system for driving the vehicle to the shop without towing.

470. Paint Heater

Thermalcup, Inc. is manufacturing a new hot spray lacquer and enamel heater which has a six quart capacity for spraying a complete car. It is said to assure control of the temperature and viscosity of the material by an automatic thermostat. Outside pilot lights signals the operator when the batch is in ideal spraying heat range. The neck of the heater

provides additional two quart capacity over and above the six quart capacity. The operator can spray directly from the heater or can transfer the hot paint from the heater to his standard spraying cup.

471. Car Wash

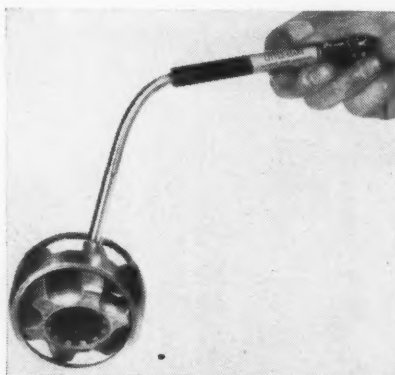
John T. Stanley, Inc., now packages their Mobo powdered car wash in envelopes. The new packages are mounted on a three-colored self-service merchandiser which can be displayed on the counter or service station wall. The contents of one envelope, added to a three gallon pail of water, makes a solution for complete washing. The manufacturer states that Mobo powdered car wash is not a soap, and leaves no streaks or spots and requires no wiping.

472. Bonding Book

National Brake Block Corporation announces an eight-page booklet called "Bonding Procedure." The booklet traces the steps necessary to do bonding, describes the heating and other equipment required, and indicates where it may be procured. Recommended pressures to apply and testing procedures are also given.

473. Magnetic Tool

Boyd Electronics have developed a new Magnetic Tool for repair and assembly work. This tool provides a quick method of clean-

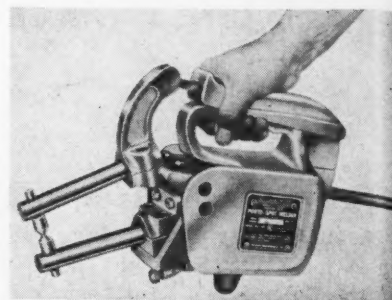


ing chips and drillings or recovering small parts from out-of-reach places. This product is said to last

for a lifetime due to the use of a new type of fission core cobalt magnetic material. It is claimed to pick up weights as heavy as three pounds. It is designed pen style for convenience and the magnet and flexible shaft are retractable into the case or handle which is made of insulated hard fibre.

474. Spot Welder

Marquette Manufacturing Company announces a new portable spot welder weighing 24½ pounds including arms, electrodes, and power cable. Called the Porto Spot Welder, Model 275, this unit



features semi-automatic timing control and a new high leverage system which is said to develop high, controlled pressure. The welder employs the "squeeze and heat" process. High amperage reduces metal to a plastic state and under heavy pressure the two metals are welded together.

475. Door Panel

Foxcraft products have introduced a new Chevrolet rear door panel designed to fit the 1949, '50 and '51 Chevrolet, Pontiac and Oldsmobile four door sedans. This panel is said to be an exact factory duplicate and includes the lock plate as on original equipment, flanged for quick installation. In the Chevrolet series, models are available for both Fleetline and Styleline.

476. Grinding Book

Landis Tool Company is publishing a new spiral bound booklet called "Better Grinding." This eighty-four page leatherette covered book contains tips on how to set up grinding jobs, how to operate precision cylindrical grinders, how to take proper care of cylindrical grinders.

(Continued on page 66)

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HERE'S HOW TO GET

Free Information

Here is a recap of the New Products described in this issue, along with their code numbers.

On each of the postage-paid postcards below you can request further data on items described in this New Products section. Fill out one of the sections completely for each item in which you are interested.

463. Water Leak Detector

464. Bolt & Nut Gage

465. Car Watch

466. Paint Mixer

467. Parts Cleaning Machine

468. Temperature Control

469. Analyzer

470. Paint Heater

471. Car Wash

472. Bonding Book

473. Magnetic Tool

474. Spot Welder

475. Door Panel

476. Grinding Book

477. Tire Chains

478. Radiator Cleaner

479. Impact Wrench

480. Tension Wrench

481. Carburetor Tags

482. Screw Starter

483. Plastic Spray

484. Water Pump

485. Exhaust Vent

486. Nameplates

487. Repaint Manual

488. Micrometer

489. Radiator Seal

490. Hydraulic Pullers

491. Washing Device

492. Deussenberg Device

493. Spray Gun

494. Fire Extinguisher

495. Body Brochure

USE THESE POSTCARDS

Name
Title
Company
Co. Address
Chilton's MOTOR AGE, Phila. 39

12/51

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Write in the number of the product about which you want more information

Name
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Write in the number of the product about which you want more information

477. Tire Chains

Nixdorff-Krein Mfg. Company is marketing the Rolon tire chain, which is said to permit complete tire installation in less than three minutes without jacking up the automobile. The main feature of the Rolon tire chain is the design of the inside circle section to which the cross chains are attached. This section is of endless

construction and void of any fastening device. The inside section consists of a standard side chain approximately 1/3 the circumference of the tire in length, the balance of the circle being made up of the section of high carbon spring steel wire, which is shaped to the curvature of the tire. This is fastened to the end of the side chain by specially designed cross

chain hooks. For installation, the chain is spread out on the ground in a circle in back of or in front of the wheels. The car is driven so that each wheel is in the center of the circle. The chain is rolled up over the wheel and the side chain fasteners are closed. All operations are performed at the outside of the wheel.

478. Radiator Cleaner

R. M. Hollingshead Corporation announces "Whiz Formula 111" a heavy duty type cooling system cleaner which is said to eliminate the necessity of removing the radiator and cleaning by rodding or boiling. It is also said to be efficient in removing rust and scale deposits in the engine block. The manufacturer reports that this is a heavy duty professional type cleaner, not designed for ordinary use, but for extreme cases. Formula 111 is a powerful cleaning combination of three different chemicals, individually packed in a cylindrical container. Each ingredient performs a separate cleaning function in dissolving rust, corrosion, and sludge, from clogged cooling systems.

479. Impact Wrench

The Mall Tool Company announces a new portable electric impact wrench which applies and removes screws, studs, and nuts. It is suitable for nut running up to 1/2 inch bolt size, and will also drill, tap, ream and extract broken capscrews or studs. It also drives wood augers, hole saws and wire brushes. A new pistol grip and trigger switch allows better control and response.

480. Tension Wrench

Blackhawk Manufacturing Company announces a new 3/8 inch drive "Torkflash" tension wrench with a capacity of 50 ft. lbs. With this tool, a flash of light tells when the proper amount of torque has been applied. The tension scale has all units of measure found in service manuals, including readings in inch pound, foot pound, and scales for various spark plug sizes and scales for iron and aluminum heads.

(Continued on page 80)

FIRST CLASS
PERMIT No. 18
Sec. 34.9, P. L. & R.
Philadelphia 39, Pa.

BUSINESS REPLY CARD

No postage stamp necessary if mailed in the United States

POSTAGE WILL BE PAID BY

Chilton's MOTOR AGE

Chestnut and 56th Sts.

Philadelphia 39, Pa.

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Chilton's MOTOR AGE

Flat Rate and Service Manual

S e r v i c e S u g g e s t i o n s

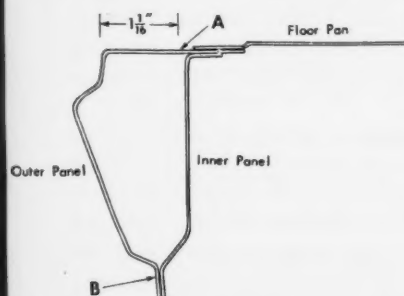
(The information presented here has been compiled from the Factory Service Bulletins, as an additional service of Chilton's Motor Age Flat Rate and Service Manual Department.)

Selected by William H. Lutton
Assistant Editor
Chilton's Motor Age Flat Rate and Service Manual

Outer Rocker Panel Section Replacement

There may be occasions where you have wreck work on Pontiacs where only a portion of the rocker panel is damaged, and the removal of trim, hardware, door, and so forth necessary for complete rocker panel replacement, is unnecessary.

And in such cases where only a portion of panel is damaged, and it is not necessary to disturb the construction welds at the body pil-



lars, body and metal men are making their vertical cuts in the outer panel at the extremities of the damaged area away from the welds at the body pillars.

So to avoid the necessity of removing the inner panel which sandwiches a portion of the outer panel between itself and the floor pan, an upper longitudinal cut is made about 1 1/16 in. inward from the

outer edge and the new panel is trimmed to fit that portion of the outer panel which remains on the car.

To separate the bottom flanges, the spot welds are drilled and the outer panel is then pulled outward to break the spot welds loose at point "B" in illustration.

Light Failure With Studebaker Automatic Drive

There have been reports from the field of some lighting system failures on cars equipped with Automatic Drive. Should this short circuit occur in the Automatic Drive remote control indicator light cable, it will be necessary to remove the original cable and to install a new indicator light cable assembly, Part number 531435. This type of short circuit may occur at the clip that holds the cable in position near the upper part of the steering column, and it will cause erratic headlight operation such as an intermittent flashing on and off whenever the selector lever is moved.

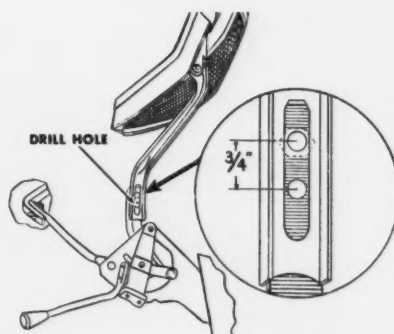
Correct this as follows:

1. Remove the Automatic Drive remote control cover plate.
2. Remove the directional indicator cover plate or switch from the side of the steering column.
3. Use a screw driver through the directional indicator hole to bend up the clip that holds the light cable in place.
4. Disconnect the light cable at the switch and pull the cable assembly through the indicator light socket.
5. Thread the new cable, Part number 531435 through the socket, connect it at switch, and bend clip

back in place with a screw driver so that it holds the new cable in place.

Cowl Ventilator Adjustment On Plymouth Cars

Sometimes the handle of the cowl ventilator mechanism meets interference with the bottom of the



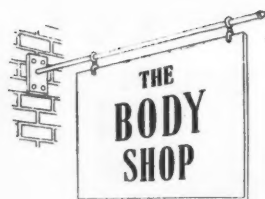
instrument panel when in the fully closed position. This can be remedied very easily; simply drill an additional hole in the link arm and this new location will give you additional adjustment.

Ball Sleeve Connector In the Chevrolet Block

Several cases of cracked cylinder blocks on Chevrolet cars have resulted after the installation of the special ball sleeve connector in the short block assembly.

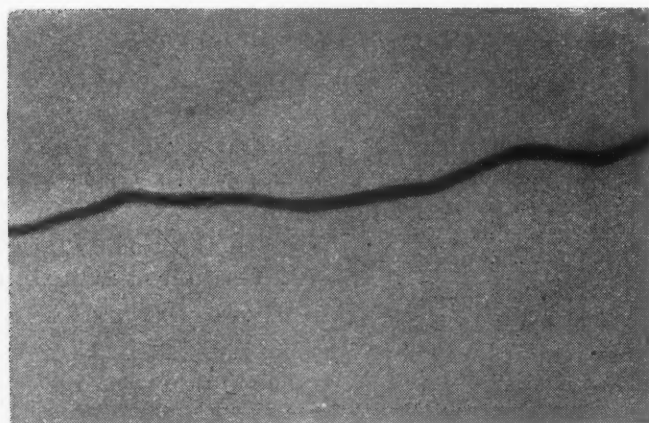
Because this sleeve connector is made of steel and is threaded into a block passage having a thin wall construction, cracking of the case at this point may occur if care is not exercised in the installation.

Whenever you replace this ball sleeve connector, use a torque wrench and tighten to a maximum of 12 ft. lbs torque.

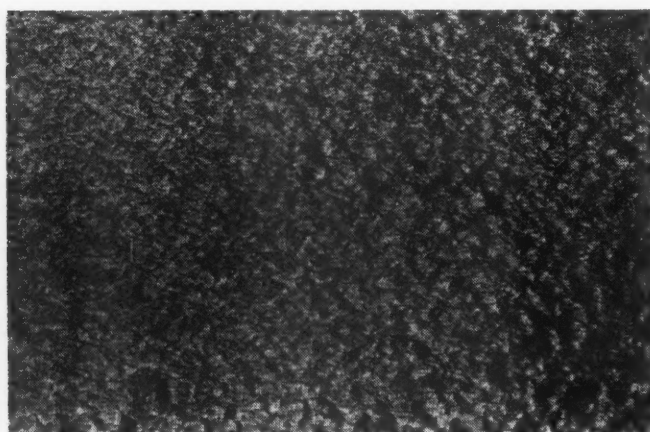


17 Paint Problems . . .

Continued from Page 51



Runs or Sags



Wrinkling

the ingredients of the thinner. Blushing can sometimes be eliminated by adding retarder to the paint, although this is not always the cure under high humidity conditions. The hot-application method of refinishing usually does away with blushing, even under severe humidity. When blushing occurs, dry the area, sand down with 00 sandpaper and give it another color coat.

Chalking, to a degree, is a natural condition of a painted surface and is the result of exposure to the elements without the protection of wax or polish. Chalking is detected by a dull-

ness of the finish and the presence of pigment on a polishing cloth that has been used on the surface. The common remedy for chalking is to clean the surface down to the "live" paint with a good cleaner and then to protect the finish with a good wax or polish.

Dulling of a finish may be due to inferior refinish materials or premature rubbing. Be sure to use accredited brands of refinish materials and abide by the manufacturer's directions regarding drying time prior to rubbing. If the car has been in service for some time before the finish loses its lustre, it would be advisable to investigate the care of the finish after the car left the shop. Compounding, washing with soap, use of caustic cleaners and inferior polishes can cause the dulling of a painted surface. A good polish job may help, but the most satisfactory is refinishing.

Fading, due to exposure to the elements, occurs in almost all paints, the degree depending upon the color. Often a complaint of faded paint can be actually diagnosed as chalking. In this case cleaning and protecting of the finish is the remedy. Sometimes, however, paint will actually fade to the point where refinishing is necessary.

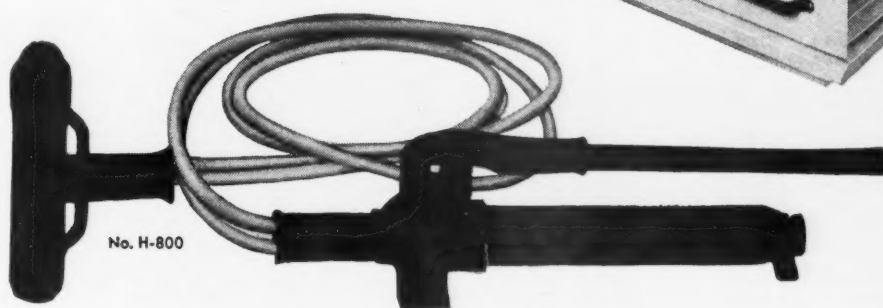
Fish-eyes, crawling and small craters in the freshly painted surface are the result of applying paint over a silicone-contaminated surface. On a silicone treated car that is to have any portion refinished, be sure that all traces of the silicone are removed with special preparations available for this purpose. Also, a product is on the market which is added to paint to eliminate this trouble. Be sure that the surface is free of all traces of silicones, blow off the area, especially in the crevices—with compressed air after sanding, since particles of dust containing silicone can create fish-eyes. Use plenty of silicone remover

(Continued on page 98)

"HEIN-WERNER PUSH and PULL" HYDRAULIC JACK

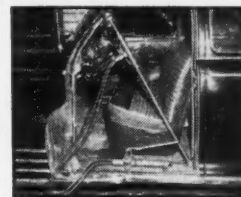
....saves up to
50% time on body,
fender and frame
repair jobs

The No. 4SUA set illustrated includes model H-800 remote control 4 ton PUSH and PULL Jack, No. 7-A assortment of 30 essential attachments, and B-4 steel storage and carrying case.

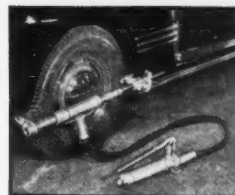


No. H-800

- ★ Push and pull with one ram—just turn release valve to right or left
- ★ Easier to set up—pulls direct with fewer attachments
- ★ Pump operates at any angle and in any position
- ★ Protected by safety valves—cannot be overloaded
- ★ Cannot become airborne at any angle or in any position
- ★ Hose guards add years to life of hose
- ★ Available in 4, 10, and 20 tons capacity, with a wide variety of attachments . . . for body, fender and frame repairing



PUSHING Post into position



PULLING Front Fender



ALIGNING Radiator and Grille

Ask your jobber

or write us for complete information

HEIN-WERNER CORPORATION • Waukesha, Wis.

Hein-Werner also manufactures Bumper-Lift Hydraulic Jacks for passenger cars... Under-Axle jacks for trucks and buses... Cylinder Sleeve Pullers... Swift-Lift and Service Jacks for shop use.



Current Passenger Car Price, Weight and Body Table

Following are prices at factory for cars with standard equipment including the fifth tire and tube as of November 26, 1951. State or local taxes, transportation and finance charges and optional equipment are extra.

BODY MAKE AND MODEL	List Price at Factory without Federal Taxes	Federal Taxes and Handling Charges	Delivered Price at Factory including Federal Taxes	Shipping Weight	BODY MAKE AND MODEL	List Price at Factory without Federal Taxes	Federal Taxes and Handling Charges	Delivered Price at Factory including Federal Taxes	Shipping Weight	BODY MAKE AND MODEL	List Price at Factory without Federal Taxes	Federal Taxes and Handling Charges	Delivered Price at Factory including Federal Taxes	Shipping Weight
BUICK					CROSLLEY					HUDSON (Continued)				
Special 40					Bus. Cpe.			943	1340	Conv. Brghm.				
Spt. Coupe, 2d	1815	172	1987		Hotshot Rdstr.			982	1175	Commodore 8				
Sedan, 2d	1869	177	2046	3600	Sta. Wagon			1002	1403	Club Coupe				
Sedan, 2d	1901	179	2080		Spts. Rdstr.			1029	1175	Sedan, 4d				
Sedan, DeL., 2d	1944	183	2127	3615	Sedan			1033	1363	Conv. Brghm.				
Sedan, 4d	1955	184	2139	3605	Conv. Sed.			1035	1320					
Sed. DeL., 4d	1998	187	2185	3680	Super			1077		KAISER				
Sed. Rivra., 2d	2036	189	2225	3645						Special				
Conv. Cpe., 2d	2349	212	2561	3830	DE SOTO					Bus. Coupe	1832		3061	
Super 50					De Luxe					Sedan, 2d	1987		3106	
Sed. DeL., 2d	3048	200	2248	3685	Club Coupe	2055	160	2215	3445	Sedan, 4d	2036		3128	
Sed. Rivra., 2d	2147	209	2356	3765	Sedan, 4d, 6p	2068	181	2227	3550	Traveler, 2d	2085		3210	
Sed. DeL., 4d	2148	208	2356	3755	Carry-All	2279	178	2457		Traveler, 4d	2134		3270	
Sed. Rivra., 4d	2223	214	2437	3845	Sedan, 8p	2784	217	3001		De Luxe				
Conv. Cpe., 2d	2493	235	2728	3965	Custom					Sedan, 2d	2095		3151	
Estate Wag., 4d	2871	282	3133	4100	Club Coupe	2243	175	2418	3565	Club Coupe	2114		3111	
Fl'dmaster, 70					Sedan, 4d, 6p	2261	176	2438	3660	Sedan, 4d	2143		3171	
Sed. Rivra., 4d	2774	270	3044	4240	Sportsman	2561	199	2761	3720	Traveler, 2d	2192		3285	
Cpe. Rivra., 2d	2780	271	3051	4185	Convertible	2655	207	2862		Traveler, 4d	2241		3345	
Cpe. Rivra., 2d	2865	278	3143	4235	Station Wagon	2827	220	3047		LINCOLN				
Conv. Cpe., 2d	2995	288	3283	4355	Sedan, 4d, 8p	2980	231	3211		Coupe, 6p	2505		4065	
Estate Wag., 4d	3459	321	3780	4470	Suburban	3310	256	3566		Spt. Sedan	2553		4130	
CADILLAC					DODGE					Lido	2702		4100	
Series 62					Wayfarer					Cosmopolitan				
Coupe	3167			4050	Coupe, 3p	1684	131	1795	3050	Coupe, 6p	3129		4340	
Sedan	3253			4040	Roadmaster, 3p	1784	140	1924		Spt. Sedan	3182		4415	
Cpe. de Ville	3547			4120	Sedan, 2d	1795	141	1936	3140	Capri	3350		4360	
Convertible	3681			4340	Meadowbrk					Convertible, 6p	3891		4615	
Series 60					Sedan	1910	149	2059	3355	MERCURY				
Sedan	3815			4200	Coronet					Coupe, 6p	1947		3485	
Series 75					Club Coupe	1977	155	2132	3290	Spt. Sedan	2000		3550	
Sedan, 8p	4791			4690	Sedan, 4d	1992	156	2148	3385	Monterey	2116		3530	
Imperial	4993			4710	Diplomat	2298	180	2478	3475	Monterey	2127		3530	
CHEVROLET					Conv. Coupe	2382	186	2568	3520	Convertible	2380		3760	
Styl. Spec. JJ					Sierra	2568	200	2768	3735	Station Wagon	2530		3800	
Bus. Cpe., 2d	1335			3040	Sedan, 4d, 8p	2705	211	2916		NASH				
Sedan, 2d	1410			3095	FORD					Rambler Super				
Spt. Coupe, 2d	1415			3060	De Luxe 6	1324		2990		Suburban	1731		2515	
Sedan, 4d	1458			3130	Bus. Coupe	1417		3035		Sedan, 2d	1810		2420	
Fltn. Spec. JJ					Tudor	1465		3105		Convertible, 2d	1833		2430	
Sedan, 2d	1410			3090	Fordor					Stat. Wag., 2d	1833		2515	
Sedan, 4d	1458			3130	Cust. DeL. 6	1505		3025		Statesm'n DeL.				
Styl. DeL. JK					Club Coupe	1505		3035		Bus. Coupe	1665		2835	
Sedan, 2d	1491			3110	Tudor	1553		3105		Stat'mn. Supr.				
Spt. Coupe	1507			3115	Fordor	2029		3550		Sedan, 2d	1765		2930	
Sedan, 4d	1539			3140	Station Wagon					Club Cpe., 2d	1789		2935	
Bel Air Coupe	1755			3225	De Luxe 8	1411		3030		Sedan, 4d	1792		2970	
Conv. Coupe	1862			3380	Bus. Coupe	1492		3075		Stat'mns Cust.				
Stat. Wagon	2013			3470	Tudor	1540		3145		Sedan, 2d	1924		2940	
Fltn. DeL. JK					Fordor					Club Cpe., 2d	1947		2950	
Sedan, 2d	1491			3125	Cust. DeL. 8	1585		3075		Sedan, 4d	1950		2990	
Sedan, 4d	1539			3155	Tudor	1590		3065		Ambassador				
CHRYSLER					Club Coupe	1633		3145		Super				
Windor 6					Fordor	1925		3185		Sedan, 2d	2111		3370	
Club Coupe	2196	171	2368	3570	Victoria	1948		3305		Club Cpe., 2d	2133		3370	
Sedan, 4d, 6p	2217	173	2390	3627	Conv. Coupe	2110		3590		Sedan, 4d	2137		3410	
Twn. and City	2843	220	3063	3965	FRAZER					Custom				
Sedan, 4d, 8p	2968	229	3197	4145	Sedan, 4d	2218		3456		Sedan, 2d	2269		3380	
Wind. DeL. 6					Vagabond	2256		3555		Club Coupe	2291		3395	
Club Coupe	2398	187	2585	3700	Manhtn. Sed.	2889		3771		Sedan, 4d	2296		3445	
Sedan, 4d, 6p	2420	188	2608	3775	Mhntn, Cv. Sed.	2889		3941		OLDSMOBILE				
Trav. Sed., 4d	2660	207	2867	3890	HENRY J					88				
Newport	2741	212	2953	3855	Sedan, 2d	1251		2293		Sedan, 2d	1907		3507	
Conv. Coupe	2850	221	3071	3945	Sed. 2d, 4 cyl.	1378		2341		Sedan, 4d	1966		3542	
Sedan, 4d, 8p	3171	245	3416	4295	Sed. 2d, 6 cyl.					Sed., DeL., 2d	1988			
Limousine	3302	255	3557	4415	HUDSON					Sed. DeL., 4d	2046			
Saratoga 8					Pacemaker 6					Super 88				
Sedan, 4d, 8p	2799	217	3016	4018	Coupe, 3p	1820				Club Cpe., DeL.	2025	194	2219	3557
Club Coupe	2774	215	2989	3948	Brougham	1951				Sed., DeL., 2d	2068	197	2285	3579
Twn. and City	3418	264	3681	4310	Club Coupe	1992				Sed., DeL., 4d	2127	201	2328	3636
Sedan, 4d, 8p	3632	280	3912	4465	Sedan, 4d	1992				Hol. Cpe., DeL.	2340	218	2558	3643
Limousine	3937	303	4242		Conv. Brghm.	2464				Cv. Cpe., DeL.	2447	226	2673	3831
New Yorker 8					Super Brghm.					88				
Club Coupe	3108	240	3348	4145	Super Six					Holiday Cpe.	2378	222	2610	3762
Sedan, 4d, 6p	3136	242	3378	4260	Brougham	2063				Hol. Sed., DeL.	2398	243	2682	3787
Newport	3526	272	3798	4330	Club Coupe	2129				Hol. Cpe., DeL.	2639	273	2882	3857
Conv. Coupe	3636	280	3916	4460	Sedan, 4d	2129				Cv. Cpe., DeL.	2773	282	3025	4107
Twn. and City	3738	288	4026	4485	Conv. Brghm.	2640				PACKARD				
Imperial 8					Commodore 8					200				
Club Coupe	3399	262	3661	4230	Club Coupe	2284				Club Sed., 2d	2278	197	2475	3610
Sedan, 4d	3411	263	3674	4350	Sedan, 4d	2307				Sedan, 4d	2327	201	2528	3675
Newport	3753	289	4042	4380	Conv. Brghm.	2811				200 De Luxe				
Conv. Coupe	4088	314	4402	4570	Club Coupe	2388				Club Sed., 2d	2414	208	2622	3610
Crown Imp. 8					Sedan, 4d	2392				Sedan, 4d	2464	211	2675	3665
Sedan, 4d, 8p	6124	449	6573	5360						WILLYS				
Limousine	6233	457	6890	5450						Jeep				
										Sta. Wgn., 4 cyl.	1290		1631	2108
										Sta. Wgn., 6 cyl.	1708		2831	2818
										Sta. Wgn., 4WD	2041		2831	2831

†Prices do not include delivery and handling charges.

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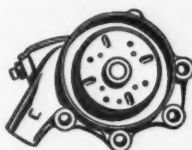
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Current Engine and Tune-up Specifications

MAKE AND MODEL	ENGINE										TUNE-UP DATA										STEERING										
	Wheelbase (In.)	No. of Cylinders, Bore and Stroke	Taxable Hp.	Piston Displacement (Cu. In.)	Maximum Brake Hp. at Specified R.P.M. (With Bare Engine)	Compression Ratio	Compression Speed (Lbs.)	Spark Plug Make and Type	Rings		VALVES				IGNITION			Cooling System Capacity (Gals.)	Caster (Deg.)	Camber (Deg.)	Toe-In (In.)	King Pin Inclination (Deg.)									
									No. and Width	No. and Width	Inlet	Exhaust	Seat Angle	Operating Tappet Clearance		Inlet Valve Timing	Timing						Spark Plug Gap	Breaker Point Gap	Cam Angle (Deg.)	Spark Occurs	Timing Marks	Timing Marks Located			
														Inlet	Exhaust		Timing Marks												Timing Marks		
Buick Special 40	121 1/2	8-3 1/2 x 4 1/2	32.5	263.3	120-3600	6.6	114	AC-46X	2-3/8	2-3/8	45	.372	HA	HA	13BT	None	.015	•	.025	4BT	FLY	A	5 1/2	12	12	12	12	4 1/2	4 1/2	4 1/2	4 1/2
Buick Super 50	121 1/2	8-3 1/2 x 4 1/2	32.5	263.3	124-3600	6.9	116	AC-46X	2-3/8	2-3/8	45	.372	HA	HA	13BT	None	.015	•	.025	4BT	FLY	A	5 1/2	12	12	12	12	4 1/2	4 1/2	4 1/2	4 1/2
Buick Roadmaster 70	126 1/2	8-3 1/2 x 4 1/2	37.8	320.2	152-3600	7.2	120	AC-46X	2-3/8	2-3/8	45	.372	HA	HA	14BT	None	.015	•	.025	6BT	FLY	A	7	18	18	18	18	4 1/2	4 1/2	4 1/2	4 1/2
Cadillac 61, 62, 60	(a)	8-3 1/2 x 3 3/4	46.5	331.0	160-3600	7.5	120	AC-46-5	2-1/4	2-1/4	44	.343	HA	HA	24BT	None	.015	31 ±	.035	5BT	VD	A	5	18	18	18	18	5 1/2	5 1/2	5 1/2	5 1/2
Cadillac 61, 62, 60	(a)	8-3 1/2 x 3 3/4	46.5	331.0	160-3600	7.5	120	AC-46-5	2-1/4	2-1/4	44	.343	HA	HA	24BT	None	.015	31 ±	.035	5BT	VD	A	5	18	18	18	18	5 1/2	5 1/2	5 1/2	5 1/2
Chevrolet Six, J, J, K, L	115	6-3 1/2 x 3 3/4	29.4	216.5	92-3400	6.6	110	AC-46-5	2-1/4	2-1/4	30	.341	HA	.013H	18T	FLY	.021	34	.035	5BT	FLY	A	5	15	15	15	15	4-30"	4-30"	4-30"	4-30"
Chevrolet Six, 2100	115	6-3 1/2 x 3 3/4	30.4	235.5	105-3600	6.7	110	AC-46-5	2-1/4	2-1/4	30	.341	HA	.013H	18T	FLY	.021	34	.035	5BT	FLY	A	5	15	15	15	15	4-30"	4-30"	4-30"	4-30"
Chrysler C-51	**	6-3 1/2 x 4 1/2	28.3	250.6	116-3600	7.0	135	AL-AR-8	2-1/2	2-1/2	45	.341	.008H	.010H	12BT	VD	.020	34 1/2	.035	2BT	VD	A	5	16	16	16	16	5 to 8 1/2	5 to 8 1/2	5 to 8 1/2	5 to 8 1/2
Chrysler C-51-8	**	6-3 1/2 x 4 1/2	46.5	331.1	160-4000	7.5	135	AL-AR-8	2-1/2	2-1/2	45	.372	HA	HA	15BT	VD	.015	34	.035	2BT	VD	A	5	25	25	25	25	5 to 8 1/2	5 to 8 1/2	5 to 8 1/2	5 to 8 1/2
Crosley Four, C, VC	80 1/2	4-2 1/2 x 2 1/2	10.0	44.0	25.5-5400*	8.0	125	CH-J8	2-1/2	2-1/2	45	.313	.006G	.008G	5BT	VD	.020	46	.035	12BT	FLY	B	2	4	4	4	4	8 1/2	8 1/2	8 1/2	8 1/2
De Soto Six, S-15	125 1/2	6-3 1/2 x 4 1/2	28.3	250.6	116-3600	7.0	120	AL-AR-8	2-1/2	2-1/2	45	.341	.008H	.010H	12BT	VD	.015	34 1/2	.035	2BT	VD	A	5	15	15	15	15	5 to 8 1/2	5 to 8 1/2	5 to 8 1/2	5 to 8 1/2
Dodge Six, D-41, D-42	(e)	6-3 1/2 x 4 1/2	25.3	230.2	103-3600	7.0	110	AL-AR-8	2-1/2	2-1/2	45	.340	.008H	.010H	8BT	VD	.020	34 1/2	.035	2BT	VD	A	5	14	14	14	14	5 to 8 1/2	5 to 8 1/2	5 to 8 1/2	5 to 8 1/2
Ford Six, IHA	114	6-3 1/2 x 4 1/2	25.1	225.9	96-3600	6.8	110	CH-H10	2-1/2	2-1/2	45	.341	.014C	.018C	11BT	CP	.015	27	.030	2BT	VD	A	4	17 1/2	17 1/2	17 1/2	17 1/2	5 1/2	5 1/2	5 1/2	5 1/2
Ford Eight, IBA	114	6-3 1/2 x 4 1/2	32.5	239.4	100-3600	6.8	110	CH-H10	2-1/2	2-1/2	45	.341	.014C	.018C	11BT	CP	.015	27	.030	2BT	VD	A	4	17 1/2	17 1/2	17 1/2	17 1/2	5 1/2	5 1/2	5 1/2	5 1/2
Ford Six, 51B, 516	123 1/2	6-3 1/2 x 4 1/2	26.3	226.2	115-3600	7.3	120	AL-A5	2-093	2-093	45	.341	.014C	.014C	10BT	VD	.020	38	.032	4BT	VD	A	5	13	13	13	13	5 1/2 to 6 1/2	5 1/2 to 6 1/2	5 1/2 to 6 1/2	5 1/2 to 6 1/2
Henry J	100	4-3 1/2 x 4 1/2	15.6	134.2	68-4000	7.0	120	AL-AN7	2-093	2-093	45	.373	.016	.016	9BT	CP	.020	38	.030	TC	FLY	A	4	10 1/8	10 1/8	10 1/8	10 1/8	4 1/2	4 1/2	4 1/2	4 1/2
Henry J	100	4-3 1/2 x 4 1/2	23.4	161.0	80-3600	7.0	120	AL-AN7	2-093	2-093	45	.341	.016	.016	9BT	CP	.020	38	.030	TC	FLY	A	4	10 1/8	10 1/8	10 1/8	10 1/8	4 1/2	4 1/2	4 1/2	4 1/2
Hudson Pacemaker 4A	119 1/2	6-3 1/2 x 3 3/4	30.4	232.0	112-4000	6.7	110	CH-H8	2-078	2-078	45	.341	.008H	.010H	7 1/2 BT	FLY	.020	39	.032	TC	FLY	A	7	18 1/2	18 1/2	18 1/2	18 1/2	3 3/8	3 3/8	3 3/8	3 3/8
Hudson Custom 5A-6A	123 1/2	6-3 1/2 x 4 1/2	30.4	262.0	123-4000	6.7	110	CH-H8	2-078	2-078	45	.341	.008H	.010H	7 1/2 BT	FLY	.020	39	.032	TC	FLY	A	7	18 1/2	18 1/2	18 1/2	18 1/2	3 3/8	3 3/8	3 3/8	3 3/8
Hudson Hornet 7A	123 1/2	6-3 1/2 x 4 1/2	34.9	308.0	145-3600	7.2	119	CH-H8	2-078	2-078	45	.341	.008H	.010H	7 1/2 BT	FLY	.020	39	.032	TC	FLY	A	7	18 1/2	18 1/2	18 1/2	18 1/2	3 3/8	3 3/8	3 3/8	3 3/8
Hudson Comm. 6-6A	123 1/2	6-3 1/2 x 4 1/2	28.6	254.0	128-4200	6.7	119	CH-H8	2-093	2-093	45	.341	.006H	.010H	10 40 BT	FLY	.017	27	.032	TC	FLY	A	7	18 1/2	18 1/2	18 1/2	18 1/2	3 3/8	3 3/8	3 3/8	3 3/8
Kaiser Six, 511, 512	118 1/2	6-3 1/2 x 4 1/2	26.3	226.2	115-3600	7.3	120	AL-A5	2-093	2-093	45	.341	.014C	.014C	10BT	VD	.020	34	.032	4BT	VD	A	5	13 1/2	13 1/2	13 1/2	13 1/2	4 1/2 to 5 1/2	4 1/2 to 5 1/2	4 1/2 to 5 1/2	4 1/2 to 5 1/2
Lincoln EL-1EH	(b)	6-3 1/2 x 4 1/2	39.2	336.7	154-3600	7.0	110	CH-H10	2-093	2-093	45	.341	HA	HA	9BT	CP	.015	27	.030	4BT	CP	A	5	34 1/2	34 1/2	34 1/2	34 1/2	5	5	5	5
Mercury ICM	118	6-3 1/2 x 4 1/2	32.5	255.4	112-3600	6.8	115	CH-H10	2-093	2-093	45	.341	.014C	.016C	8BT	CP	.015	27	.030	2BT	CP	A	5	22 1/2	22 1/2	22 1/2	22 1/2	5	5	5	5
Nash Rambler 5110	100	6-3 1/2 x 3 3/4	23.4	172.6	82-3600	7.3	120	AL-A5	2-093	2-093	45	.341	.015H	.015H	8BT	None	.021	35	.030	TC	VD	A	5	12	12	12	12	8	8	8	8
Nash Statesman 5140	112	6-3 1/2 x 4 1/2	23.4	184.0	85-3600	7.0	120	AL-A5	2-093	2-093	45	.341	.015H	.015H	8BT	None	.021	35	.030	TC	VD	A	5	12	12	12	12	8 1/2	8 1/2	8 1/2	8 1/2
Nash Amb., 5160	121	6-3 1/2 x 4 1/2	27.3	234.8	115-3400	7.3	130	AL-A5	2-093	2-093	45	.372	.015H	.015H	8 1/2 BT	None	.020	35	.030	TC	VD	A	6	17	17	17	17	8 1/2	8 1/2	8 1/2	8 1/2
Oldsmobile Super 88	119 1/2	8-3 1/2 x 3 3/4	45.0	303.7	135-3600	7.5	140	AC-46-5	2-1/4	2-1/4	45	.342	HA	HA	13 1/2 BT	None	.015	29	.030	2 1/2 BT	CP	A	5	21 1/2	21 1/2	21 1/2	21 1/2	4-29 47"	4-29 47"	4-29 47"	4-29 47"
Oldsmobile Super 88	120	8-3 1/2 x 3 3/4	45.0	303.7	135-3600	7.5	140	AC-46-5	2-1/4	2-1/4	45	.342	HA	HA	13 1/2 BT	None	.015	29	.030	2 1/2 BT	CP	A	5	21 1/2	21 1/2	21 1/2	21 1/2	4-29 47"	4-29 47"	4-29 47"	4-29 47"
Oldsmobile Super 88	122	8-3 1/2 x 3 3/4	45.0	303.7	135-3600	7.5	140	AC-46-5	2-1/4	2-1/4	45	.342	HA	HA	13 1/2 BT	None	.015	29	.030	2 1/2 BT	CP	A	5	21 1/2	21 1/2	21 1/2	21 1/2	4-29 47"	4-29 47"	4-29 47"	4-29 47"
Packard 200	122	8-3 1/2 x 4 1/2	38.2	288.0	135-3600	7.0	120	AL-A5	2-1/4	2-1/4	30	.341	.007H	.010H	15BT	VD	.017	(f)	.026	6BT	VD	...	7	20	20	20	20	5-50"	5-50"	5-50"	5-50"
Packard 260 & 300	127	8-3 1/2 x 4 1/2	39.2	327.0	150-3600	7.8	120	AL-A5	2-1/4	2-1/4	30	.341	AA	AA	15BT	VD	.017	(f)	.026	6BT	VD	...	7	20	20	20	20	5-50"	5-50"	5-50"	5-50"
Packard 260 & 300	127	8-3 1/2 x 4 1/2	39.2	327.0	155-3600	7.8	120	AL-A5	2-1/4	2-1/4	30	.341	AA	AA	15BT	VD	.017	(f)	.026	6BT	VD	...	7	20	20	20	20	5-50"	5-50"	5-50"	5-50"
Plymouth Six, P22, P23	(i)	6-3 1/2 x 4 1/2	25.3	217.8	97-3600	7.0	135	AL-AR-8	2-1/4	2-1/4	45	.340	.008H	.010H	12BT	CP	.019	34 1/2	.035	2BT	CP	A	5	13	13	13	13	5 to 6 1/2	5 to 6 1/2	5 to 6 1/2	5 to 6 1/2
Pontiac Six, 25	120	6-3 1/2 x 4 1/2	30.4	236.2	100-3400	6.8	120	AC-44-5	2-1/4	2-1/4	45	.310	.011H	.013H	13 1/2 BT	None	.022	37	.025	6BT	VD	...	5	18 1/2	18 1/2	18 1/2	18 1/2	4 1/2 to 5 1/2	4 1/2 to 5 1/2	4 1/2 to 5 1/2	4 1/2 to 5 1/2
Pontiac Six, 25	120	6-3 1/2 x 4 1/2	30.4	236.2	100-3400	6.8	120	AC-44-5	2-1/4	2-1/4	45	.310	.011H	.013H	13 1/2 BT	None	.022	37	.025	6BT	VD	...	5	18 1/2	18 1/2	18 1/2	18 1/2	4 1/2 to 5 1/2	4 1/2 to 5 1/2	4 1/2 to 5 1/2	4 1/2 to 5 1/2
Studebaker Six, 100	115	6-3 1/2 x 3 3/4	21.6	189.6	85-4000	7.0	120	CH-J7	2-076	2-076	45	.312	.016C	.016C	18BT	VD	.020	38	.025	3BT	VD	A	6	10	10	10	10	5 1/2	5 1/2	5 1/2	5 1/2
Studebaker Six, 100	115	6-3 1/2 x 3 3/4	21.6	189.6	85-4000	7.0	120	CH-J7	2-076	2-076	45	.312	.016C	.016C	18BT	VD	.020	38	.025	3BT	VD	A	6	10	10	10	10	5 1/2	5 1/2	5 1/2	5 1/2
Studebaker Six, 100	115	6-3 1/2 x 3 3/4	21.6	189.6	85-4000	7.0	120	CH-J7	2-076	2-076	45	.312	.016C	.016C	18BT	VD	.020	38	.025	3BT	VD	A	6	10	10	10	10	5 1/2	5 1/2	5 1/2	5 1/2
Willis Six, 673	104	4-3 1/2 x 3 3/4	15.6	134.2	72-4000	7.4	135	CH-J7	2-1/2	2-1/2	45	.373	.016C	.012C	9BT	FLY	.020	51	.030	TC	FLY	A	4	11 1/2	11 1/2	11 1/2	11 1/2	5 1/2	5 1/2	5 1/2	5 1/2
Willis Six, 673	104	4-3 1/2 x 3 3/4	23.4	161.0	75-4000	6.9	145	CH-J7	2-1/2	2-1/2	45	.341	.016	.016	9BT	FLY	.020	58	.030</												

ABBREVIATIONS

- *—1952 models.
- †—Do not recommend using a dwell meter for checking point opening.
- ‡—Used with Powerglide transmission at extra cost.
- §—250 Model = 127"; 300 Model = 127".
- (a)—Model 61—122; 62—126; 60—130 in.

- (b)—121 in. for IEL model; 126 in. for Cosmopolitan model.
- (c)—Upper Ring 1/8 in., Lower Ring .1665 in.
- (d)—Top ring .093; bottom ring .123.
- (e)—D41 Fan Drive Pulley; D42 Vibration Damper.

- (f)—Auto-Lite 27, Delco 21 1/2.
- (g)—Top Ring 1/8; Middle Ring 1/8.
- (h)—Auto-Lite ASH; AC46-5; Champion J-8.
- (i)—Upper Ring 1/8; Lower Ring .1665 in.
- (j)—D41 = 115"; D42 = 123 1/2".
- (k)—P22 = 111"; P23 = 118 1/2".
- (l)—115 and 119 inches.

- (v)—Left side 1/2" to 1/2" higher than right.
- CH—Crankschaft and Camshaft Sprockets.
- CC—Champion Spark Plug Co.
- CP—Crankschaft Pulley.
- DP—Distributor Housing.
- FL—Flywheel.
- HA—Hydraulic Automatic Adjustment.
- TC—Top Center.
- TG—Timing Gears.
- VD—Vibration Damper.

Wise counsel gets young

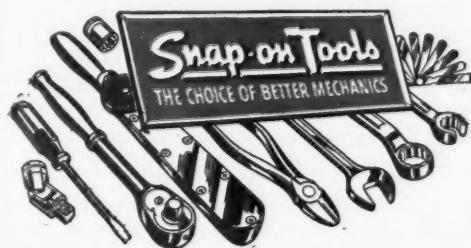
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Using Special Tools

When removing shoes always use special brake pliers to remove the springs. Avoid stretching springs. It is also good policy to mark the shoes with chalk so that they can be re-installed in their same location. When removing old shoes also check them for wear patterns. This will give you a

clue to how they were behaving in service. When re-assembling be sure that no grease or brake fluid gets on the linings, as this will cause grabbing immediately.

Checking Lining Wear Pattern

If the edges of the lining are worn, that means the shoes have been tilting when brakes are ap-

plied. If the inside edge of lining is worn, it means that the shoe has been tilting outward when pressure was first applied to the shoe. This may be caused by the adjusting cam pin being too long. If the cam pin is short, it will hold the brake shoe out and keep it from contacting the drum squarely and evenly. If the outer edge of the lining is worn, it means that the shoe has been tilting inward, and that may be caused by the cam pin being too short, and the guide spring being too strong. In a case where the cam pin is too short, the guide spring can be bent outward to relieve pin pressure.

If you find a diagonal wear pattern, the shoe is twisted or bent. If the diagonal wear pattern is fairly even and spread out, the shoe is twisted slightly, but if the wear is heavily concentrated at opposite corners, it means the shoe is badly twisted.

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MANUFACTURERS OF THE POWERFLEX CLUTCH PLATE

REPLACEMENT UNIT CO. 1505 Rockwell Ave.
Cleveland 14, Ohio

REBUILDERS OF GUARANTEED CLUTCH ASSEMBLIES



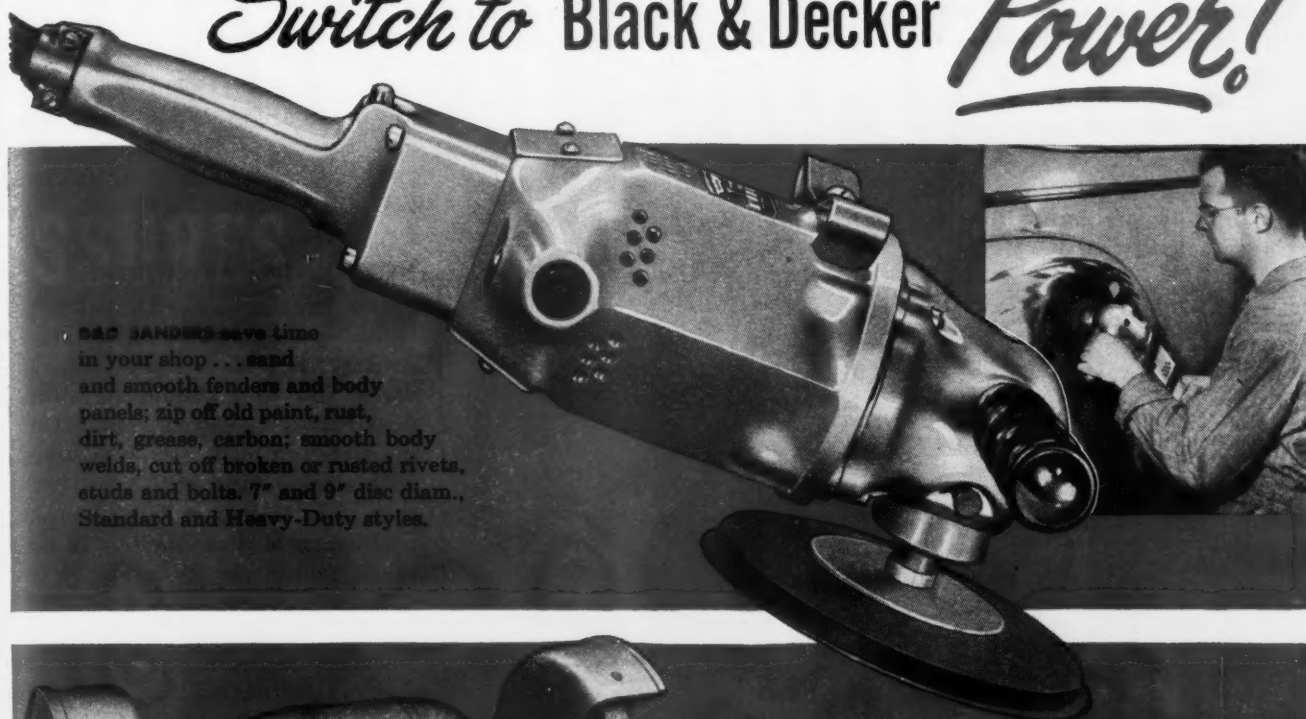
Correcting Brake Squeals

When using riveted lining always chamfer the edges of the top shoes, but on molded lining this is not necessary. The lining end should be square. The cam pin height should be checked on every job. If the pin is too long, lift the flat guide spring and give the pin a couple of sweeps with the file to take off some material. Before installing shoes, back off the cams so that the brake return springs won't have to be stretched unduly. Springs should be tested before installing for proper ten-

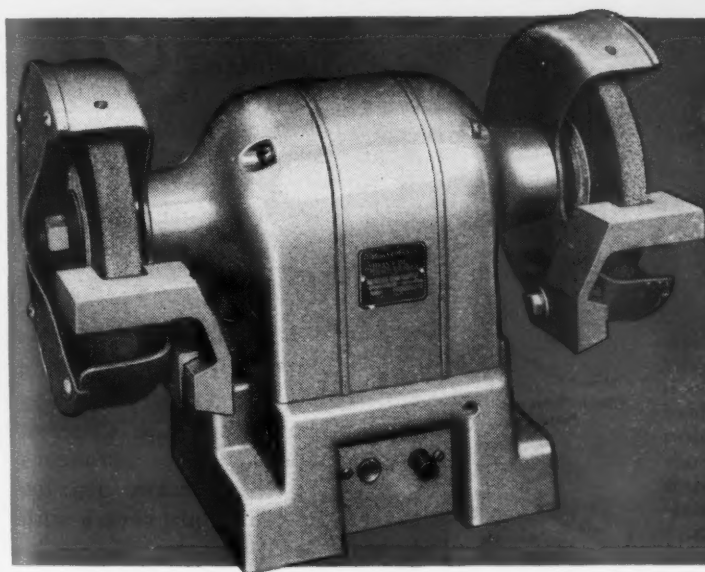
(Continued on page 76)

For speedier **SANDING, GRINDING, CLEANING**

*Switch to Black & Decker **Power!***



B&D SANDERS save time in your shop... sand and smooth fenders and body panels; zip off old paint, rust, dirt, grease, carbon; smooth body welds, cut off broken or rusted rivets, studs and bolts. 7" and 9" disc diam.. Standard and Heavy-Duty styles.



B&D BENCH GRINDERS are tops for many types of grinding; cleaning spark plugs, valves, other dirty, gummy parts; removing rust and scale; sharpening twist drills, chisels, many other tools. 6", 8" and 10" wheel diam., 1/4 to 1 H. P.



Quality in the tool pays off on the job! That's why B&D Sanders and Grinders mean finer, faster work and more profits for you! *B&D Sanders give you:* full-power B&D universal motors; matched-lapped, spline-mounted spiral bevel gears of heat-treated alloy for greater strength; complete abrasive dust protection for all vital parts; perfect balance for easier handling. *B&D Bench Grinders give you:* dependable B&D constant-speed motors; streamlined design for more work clearance; adjustable U-shaped tool rests for better support; strong steel wheel guards for extra safety.

See your nearby B&D Distributor for a demonstration. See the quality features that pay off in profits. See why it makes sense to "Switch to Black & Decker POWER!" Write today for free catalog of over 100 tools to: **THE BLACK & DECKER MFG. CO., 627 Pennsylvania Ave., Towson 4, Maryland.**



LEADING DISTRIBUTORS EVERYWHERE SELL

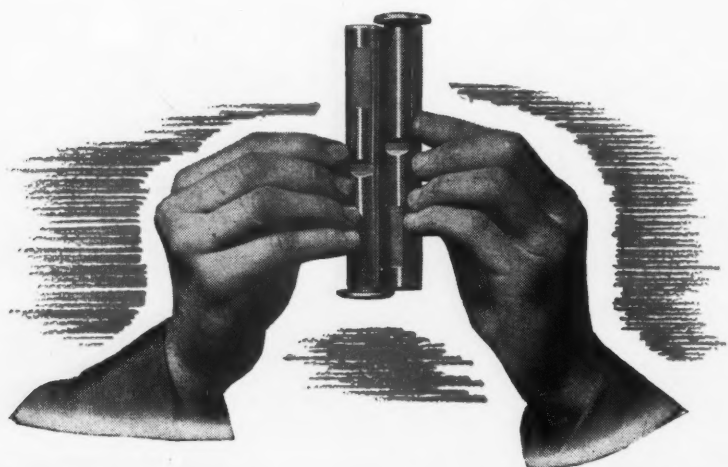
Black & Decker

PORTABLE ELECTRIC TOOLS

sion. This can be done by comparing them with one of the others or with new ones out of stock. They should also be checked for distortion.

To correct the squeals on bonded lining, the most successful method is to remove the shoes and with a hacksaw cut a diagonal all the way through the lining into the

shoe, using two hacksaw blades. Then install rubbers on the anchors and spacers on the eccentrics using lubrication on all joints before installing the shoes to the backing plates. If a machine is available for grinding the lining do this at the same time. Installing a spring around the drum helps to remove squeals.



We learned how to make a straight bolt ...and we DO IT!

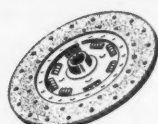
TAKE two king bolts of another make out of your stock; lay one on top of the other; hold them up to the window. See the daylight between them? You may find a gap up to .015 inch.

Try the same test with two Monmouth King Bolts—no daylight visible.

Why? Because they are straight. We finish grind after heat treating. It costs

much more in time and tools but it is the only way to make a straight bolt. So we do it that way. Another example of the engineered and precision construction of Monmouth Replacement Parts which makes them preferred by master automotive mechanics.

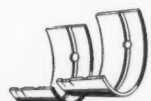
N. A. P. A. distribution coast to coast gives you Minute-Man delivery on wanted Monmouth Parts.



Clutch Plates and Parts



Knuckle Support Pin



Bearings

All Monmouth Replacement Parts are engineered and precision made to safeguard the reputation of the master automotive mechanics and to insure user safety and satisfaction.



**THE CLEVELAND
GRAPHITE BRONZE CO.**
REPLACEMENT SALES DIVISION
4345 Carnegie Ave. • Cleveland 3, Ohio

Breaking In New Lining

When turning out a brake job, the customer should be told how to break in his new lining.

The brakes should never be applied severely when new shoes or lining have been installed. Severe applications may permanently injure new linings and may score the brake drums. When linings are new they must be given moderate use for several days until they are nicely burnished.

Other Factors Affect Brakes

Old tires should be inflated to equal pressures before testing brakes. The tires should be the same size and should have approximately the same tread. One or more smooth tires combined with tires having good tread will give a false impression of brake performance. Car loading is another factor for brake troubles. Unusual or unequal loading of the car will affect brake performance and must be taken into consideration when judging the condition of the brakes. Also front end alignment—misalignment of the front end particularly in regard to limits on camber, caster, and king pin inclination will cause brakes to pull from one side to the other.

Factors Which Affect Brake Action

If the shock absorbers are not functioning properly, they may permit bouncing of the wheel at quick stops and give erroneous impression that brakes are too severe. If brakes are severe with light pedal pressure, the brake shoes are not properly adjusted. Re-adjust the shoes, paying particular attention to the anchor pin adjustment, for centralization of shoes in the drum. Small amounts of grease or brake fluid on lining will also cause grabby brakes. Correct the cause and replace the lining since these substances cannot be permanently cleaned off the lining. Charred lining or scored drums will also cause grabby action. Loose front wheel bearings, and loose backing plates are other causes for grabbing brakes.

If a hard pedal is experienced,

(Continued on page 78)

KELSEY-HAYES POWER BRAKING

ASSURES *Feather touch* CONTROL



Today's most advanced development in power braking is **Kelsey-Hayes** amazing "VACDRAULIC", forerunner of even more startling **Kelsey-Hayes** developments for tomorrow's motor cars.

Kelsey-Hayes "Vacdraulic" is the only unit to power the brake action instantaneously, with perfect "feather-touch" control, assuring perfect "pedal feel" in direct proportion to the pressure applied. **Kelsey-Hayes** "Vacdraulic" cuts foot pressure by as much as two-thirds that required for ordinary brakes!

"Vacdraulic", the only unit utilizing complete hydraulic control with a fixed reaction ratio, insures perfect "feather-touch" control at all pressures.

NOW! . . . Kelsey-Hayes "Vacdraulic" power brakes are standard equipment on over 100,000 cars of one of the world's leading automotive manufacturers. (**Kelsey-Hayes** engineers will gladly consult with you on the superior advantages of VACDRAULIC POWER BRAKES as original equipment on your new cars.)



ASSURES PROVEN PRODUCTS AT

KELSEY-HAYES WHEEL COMPANY

DETROIT 32, MICHIGAN



PRODUCTS: Wheels—Hub and Drum Assemblies—Brakes—Vacuum Brake Power Units—for Passenger Cars, Trucks, Buses—Electric Brakes for House Trailers and Light Commercial Trailers—Wheels, Hubs, Axles, Parts for Farm Implements.
PLANTS: Kelsey-Hayes Plants in Michigan (4); McKeesport, Pa.; Los Angeles, Calif.; Davenport, Iowa; Windsor, Ontario, Canada.

Brake Job Notebook • Continued from Page 76

the brake shoes may not be properly centered. If brake shoes are not concentric with drums, they will not make full contact, and braking effort will be reduced. Adjust the brake shoes, paying particular attention to the anchor pin adjustment.

Reasons for Hard Pedal

Another cause for hard pedal is

grease, oil, paint or other foreign substances on the lining. They reduce their gripping qualities and require excessive pedal pressure to stop the car. Improper grade of lining lose their gripping qualities after some use. If brake grab at one wheel, it is usually due to insufficient clearance of the brake shoes, a weak or broken brake shoe return spring,

a loose front wheel bearing, a wheel cylinder piston stuck or cups distorted. There may be an obstruction in one of the brake hoses or one of the brake lines.

Reasons for Brake Dragging

If brakes drag at all wheels, it could be due to insufficient clearance of the brake shoes or because the master cylinder compensating port is closed. If brake pedal adjustment does not correct the trouble, remove the master cylinder for disassembly and thorough cleaning. Never insert a test wire through the compensating port as this may leave a burr which will cut a groove in the piston primary cup, and cause the cup to fail.

If the rubber parts in the master cylinder are found to be swollen and distorted, it indicates the presence in the hydraulic system of a mineral base oil such as kerosene or gasoline. Such substances will cause all rubber parts to swell and distort, therefore it is usually necessary to flush the hydraulic system thoroughly and replace all rubber cups and cylinders.

If the car pulls to one side, it might be due to the tires being inflated unequally or having unequal wear of tread or different non-skid tread designs. Inflate all tires to specified pressures. Rearrange tires if necessary so that the tread non-skid characteristics are more nearly equal on both sides of the car. Wheel bearings might be loose, drums out-of-round, brake linings not matched or improperly placed, foreign substances on brake linings, vacuum plates may be loose, or the car may have unequal camber.

All master cylinder check valve springs are designed to maintain sufficient pressure on check valves to provide 16 to 18 pounds static pressure in brake pipes and wheel cylinders after brakes are fully released.

The brake pedal clearance should always be checked. Otherwise insufficient clearance at the push rod to the master cylinder will cause the piston to cover the compensating port hole in the master cylinder. At least one inch clearance should be at the toe board under the pedal.



We hope 1951 has been as good to you as it has to us. For we are ending the year with every department of our business at a new high level in sales. So to you —the man who meets the public—our grateful thanks for the final sales, the proper installations, the excellent car owner service you have rendered on Burd Automotive Products. May your Christmas be Merry—your New Year Most Happy and Prosperous!

BURD PISTON RING COMPANY • ROCKFORD, ILLINOIS

DIVISION OF
THE GABRIEL COMPANY



Buick mufflers— tail pipes

priced right
fit right



WHOLESALE PRICES—substantial profits for you.

DESIGNED TO FIT—no bending, fitting or adapting.
No time lost in fitting "universal" parts.


ASSURE CUSTOMER SATISFACTION—made of
prime quality materials. Designed to eliminate back
pressure and internal rattling—tuned to "sound right"
with the Buick Fireball Engine.

FRIENDLY TECHNICAL ADVICE—if needed—is yours
for the asking. *Get all your Buick parts from your Buick
dealer.*

ENGINEER APPROVED ACCESSORIES



FACTORY ENGINEERED PARTS

Better work with Buick parts  **see your Buick dealer**

481. Carburetor Tags

Gumout Division, Pennsylvania Refining Co., has recently introduced Gumout Carburetor Cleaning Tags to the trade. The tag is attached to the carburetor gas line or air filter by the serviceman who does the "Gumout" job. The tags, included in every case of Gumout, contains space for indi-

cating when the carburetor was cleaned with Gumout and a recommendation for similar cleaning every two months.

482. Screw Starter

Herbrand Tools Division of the Bingham-Herbrand Corporation is marketing a 2½-inch size Screw-starter, designed for use in under-

the-dash electrical work and other hard-to-get-at screw starting jobs. The manufacturer states that the proper spring tension of this tool will hold up to 15 pounds pull on a screw.

483. Plastic Spray

Zaco Laboratories is introducing a chrome protecting spray in a self-spray, push-button, aerosol can. Zaco chrome spray is a clear, plastic type liquid that is said to be specially formulated for adhesion to chrome. It is sprayed lightly on new chrome trim or on



Be practical this Christmas . . .

give Herbrand Tool Gift Certificates!



Here's a brand new idea to solve that old problem "What shall I give him for Christmas?" Good mechanics, professional or amateur, appreciate good tools of the highest quality, and there's always room in every kit for new time and labor-saving tools.

Mechanics, garage owners, fleet owners, car dealers or wives can purchase Gift Certificates from Herbrand Distributors in any denomination they wish. Certificate holders can choose the tools they really want—right from their local distributor of Herbrand Tools.

Christmas is just around the corner so don't wait—stop in tomorrow and do the unusual this year—buy Herbrand Tool Gift Certificates.



Herbrand Tools Fremont 7, Ohio
THE BINGHAM-HERBRAND CORPORATION



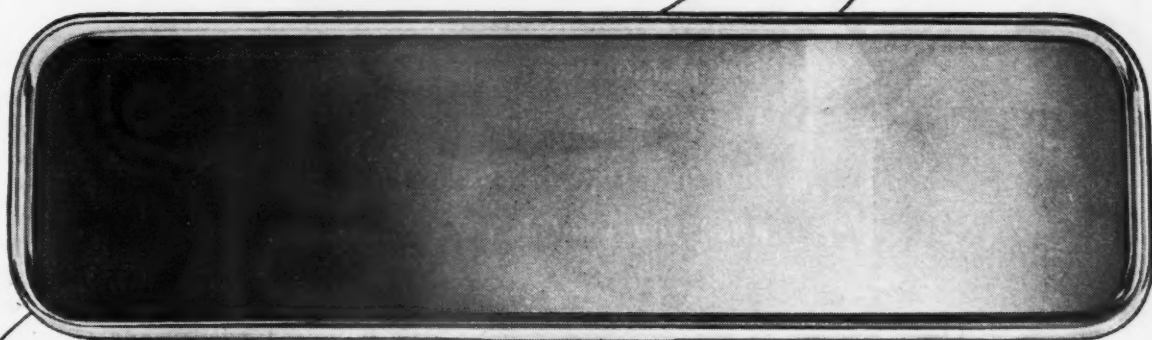
chrome that has been cleaned with a rust remover. This protection is designed to seal out moisture and salt, keeping the chrome bright for months. This product comes in 4-ounce cans for re-sale and 12-ounce cans for service use. Point-of-sale advertising aids are available.

484. Water Pumps

Richlite Manufacturing Company has added a Water Pump Division and are now in production. (Continued on page 82)



Look into this...



GLARE-PROOF
GUIDE

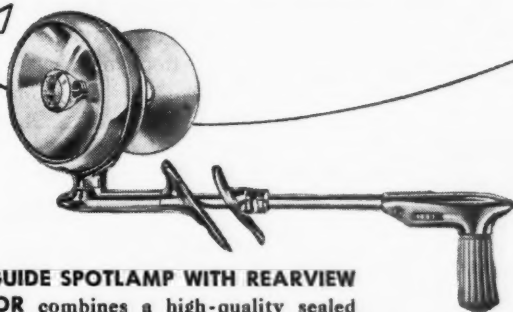
THE NEW

GUIDE GLARE-PROOF REARVIEW MIRROR

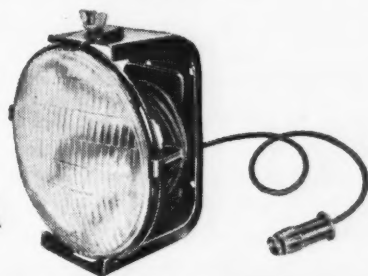
Here is an accessory that will really sell . . . because more and more drivers are learning about its safety value and want it. It's an 8½-inch-long prismatic mirror that gives a wider-

than-usual view to the rear. A flip of the finger cuts out headlight glare from behind. There's a Guide Glare-Proof Rearview Mirror for most makes of cars.

...and these



THE GUIDE SPOTLAMP WITH REARVIEW MIRROR combines a high-quality sealed beam spot lamp with a rearview mirror. Both can be quickly and easily adjusted from inside the car. This accessory is sturdily made, has a durable finish for long life and lasting beauty.



THE GUIDE MULTI-PURPOSE LAMP gets its current from the cigarette lighter receptacle. Its 14-foot long cord makes it a portable and useful lamp that can be used in and all around a car. It provides a spare headlamp sealed unit—a real friend when needed.



GUIDE LAMP—A UNITED MOTORS LINE
Available everywhere through
UNITED MOTORS DISTRIBUTORS

Guide LAMP

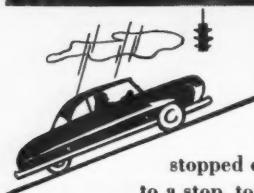
Division of General Motors
Anderson, Indiana

WICO Autostop..

brings new driving comfort



The pickup may be wonderful!
The power may be marvelous!
But does your car stand still
when you want it to?



Stops back-sliding

No need to "slip" the clutch or "ride" the accelerator when stopped on an uphill grade to prevent rolling back. You brake the car to a stop, touch the Magic Switch on the gearshift lever, and the car stays where it is until you step on the gas. With AUTOSTOPS on your customers' cars you'll get no more complaints about stalling when starting on uphill grades.

Stops rolling forward

At traffic lights or on hills or when parking, it's a nuisance to shift your foot back and forth from the accelerator to the brake pedal — and it's still more of a nuisance to use the hand brake. The AUTOSTOP keeps the brakes on and the accelerator releases them.



FREE
SALES
HELPS

Send for your free kit of AUTOSTOP selling helps.
Here's what you get:

1. Brilliant banner for showrooms and service floor.
2. 3-color illustrated folders to mail or give to customers.
3. Mailing cards with a return card setting up a time to install an AUTOSTOP.
4. AUTOSTOP newspaper advertisements.
5. Price-discount sheet.
6. Installation instructions.



WICO Has Meant Dependable
Automotive Accessories Since 1897

WICO ELECTRIC CO., 73 Phelon Ave., West Springfield, Mass.
Please send me your kit, including free advertising materials on the AUTOSTOP.

Name (please print) _____

Firm _____

Street _____

City or Town _____ State _____

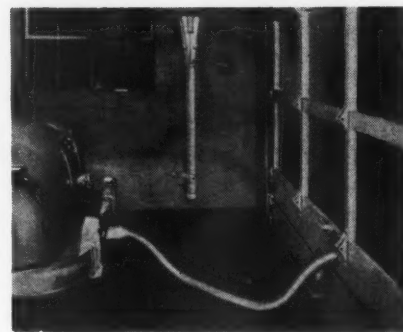
New Products

Continued from Page 80

tion with 66 numbers which are said to cover most of the popular makes of cars. The firm states that the Richlite water pumps are vacuum tested and made of high quality material. Each pump number is embossed in the casting

485. Exhaust Vent

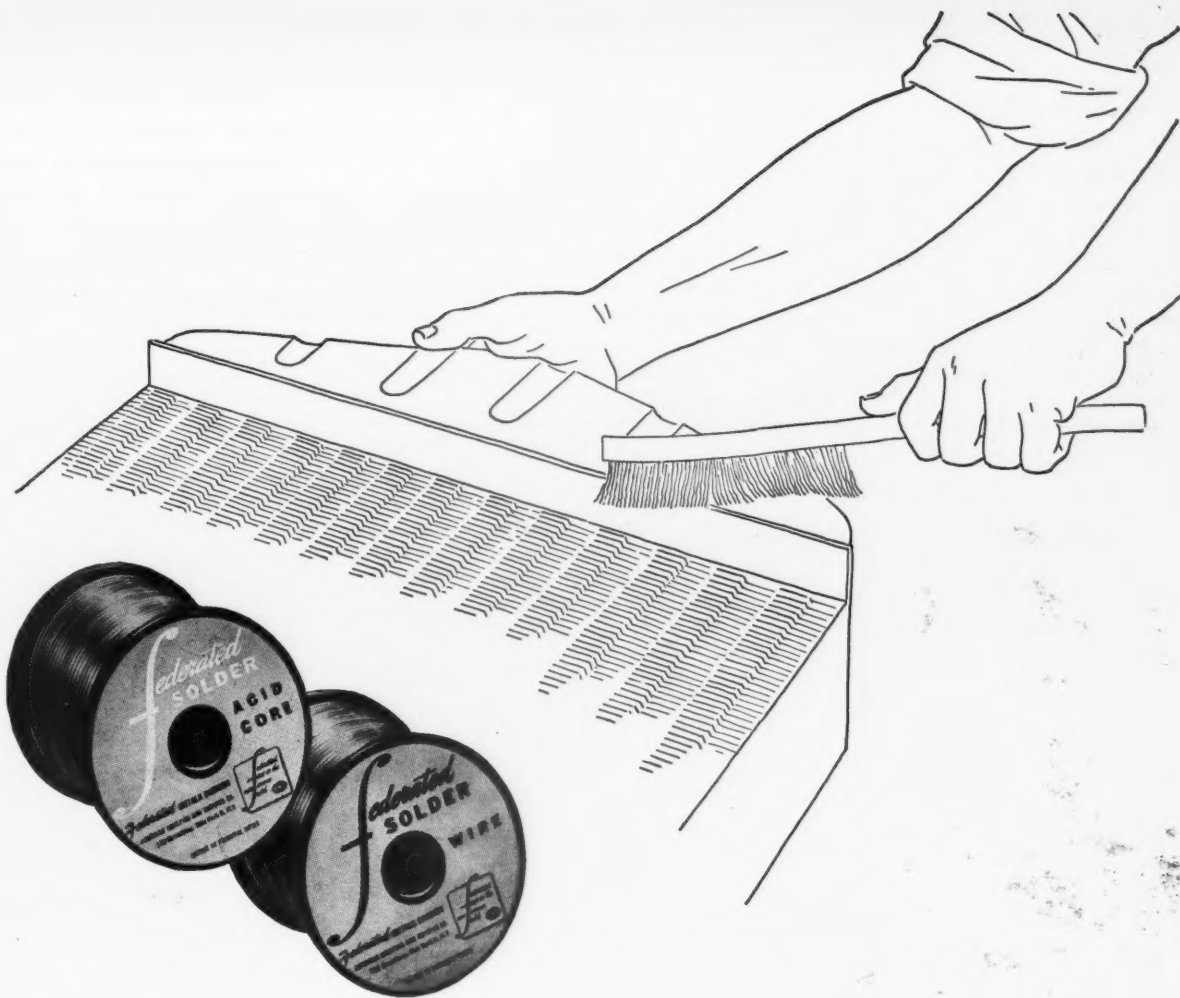
Kent-Moore Organization, Inc., has designed a new exhaust eliminating fixture to save heat in gasoline service stations and small repair shops. Designated "Monoxivent, Jr.," it consists of an 8-ft. galvanized steel flexible hose, assembled to a universal tail pipe adapter and a cast aluminum door



port. The adapter, which fits over any tail pipe or exhaust deflector, contains a recess to allow use of an exhaust analyzer. The adapter slips over the tail pipe while the other end of the hose assembly is inserted into the port which is permanently fixed in the garage door panel.

(Continued on page 84)





HOW TO SOLDER BETTER...AND SAVE METAL!

Make the joint tight and permanent *the first time* by using the right solder and the right method of soldering.

HOW TO USE . . .

Always be sure to clean *thoroughly* the surfaces to be soldered. Remove all traces of paint, grease, rust, or other metallic oxides. Use an abrasive such as sandpaper, steel wool, a file, or a wire brush to clean well. Solder sticks best to the bare metal.

WHAT TO USE . . .

The solder you use may prove to be the difference between a job's success or failure . . . between having to do it once, or over and over again. *To be sure*, use the best solder . . . Federated Solder.

Federated® Solder is available in all commercial sizes, compositions and wire dimensions. Analysis of solder prominently displayed on box. Listed by Underwriters' Laboratories Inc.

Federated Metals Division



AMERICAN SMELTING AND REFINING COMPANY • 120 BROADWAY, NEW YORK 5, N. Y.

486. Name Plates

Gryer Sales Company is featuring a new line of car dealer name-plates which are attached without drilling holes and are said to last for the life of the car. The plaque attaches by means of a new pre-applied adhesive. They are finished in chrome and can be made from the firm's name or

trademark or can be designed by the manufacturer at no additional cost.

487. Repaint Manual

Dietzler Color Division, Pittsburgh Plate Glass Company is publishing a new re-paint manual for finishes on passenger cars and commercial vehicles. Among the

subjects covered are proper care and operation of spray guns, shop equipment and car, how to spray automobile finishes, general coverage of painting procedures from preparation to end, painting troubles, how lacquer and enamel are made and many other subjects of interest to body men.

488. Micrometer

L. S. Starrett Company is manufacturing a new micrometer designed especially for crankshaft measuring. It handles most crankshaft diameters since it has a three inch frame with a range from 1½ to 2½ inches. The read-

Set of 3 Flares in metal case only 3" x 4½" x 8½"

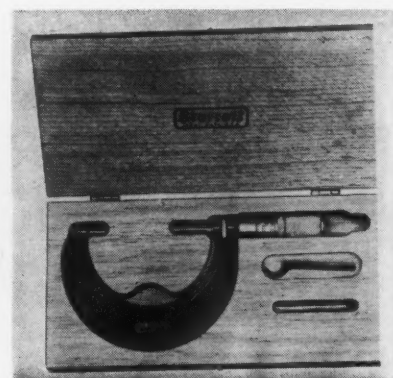
Space-saving design — compact, sturdy construction — shatterproofed Grotelite plastic reflectors visible the full range of approaching headlights. These features make the Grote No. 70 Flare the last word in emergency warning signals. All parts are rust resistant and weatherproof. Three flares, with flags and staffs, fit in compact metal case that takes the smallest space in tool compartment or trunk — or can be attached to outside of vehicle. Meets SAE specifications and ICC requirements. Ask for Grote No. 70 Flare — at your jobbers.

<p>200 Armored Clearance Lamp, Grotelite plastic lens.</p>	<p>218 New Stop and Tail Lamps, with one-piece plastic door and lens.</p>	<p>O-110 Reflectors, with one-piece plastic lens and housing.</p>
<p>225 Wide, flat clearance lamp, with large light transmitting area.</p>	<p>240 Brilliant direction signal lamps, singly or in sets, with switch.</p>	<p>250 Stop and Warning lamps for any mounting — singly and in approved sets.</p>

WRITE FOR COMPLETE CATALOG

THE **Grote**

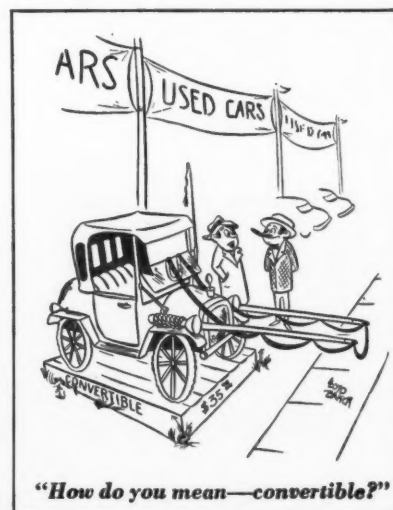
MANUFACTURING CO., INC.
GROTE SQUARE BELLEVUE, KENTUCKY
Opposite Cincinnati



ing point, the longitudinal line on the sleeve, is on the underside of the thimble, plainly visible while measuring. The frame is finished in smooth enamel and cleans easily, the manufacturer states. The thimble is stamped with convenient decimal equivalents.

489. Radiator Seal

Tincher Products Company announces a new radiator seal with (Continued on page 86)

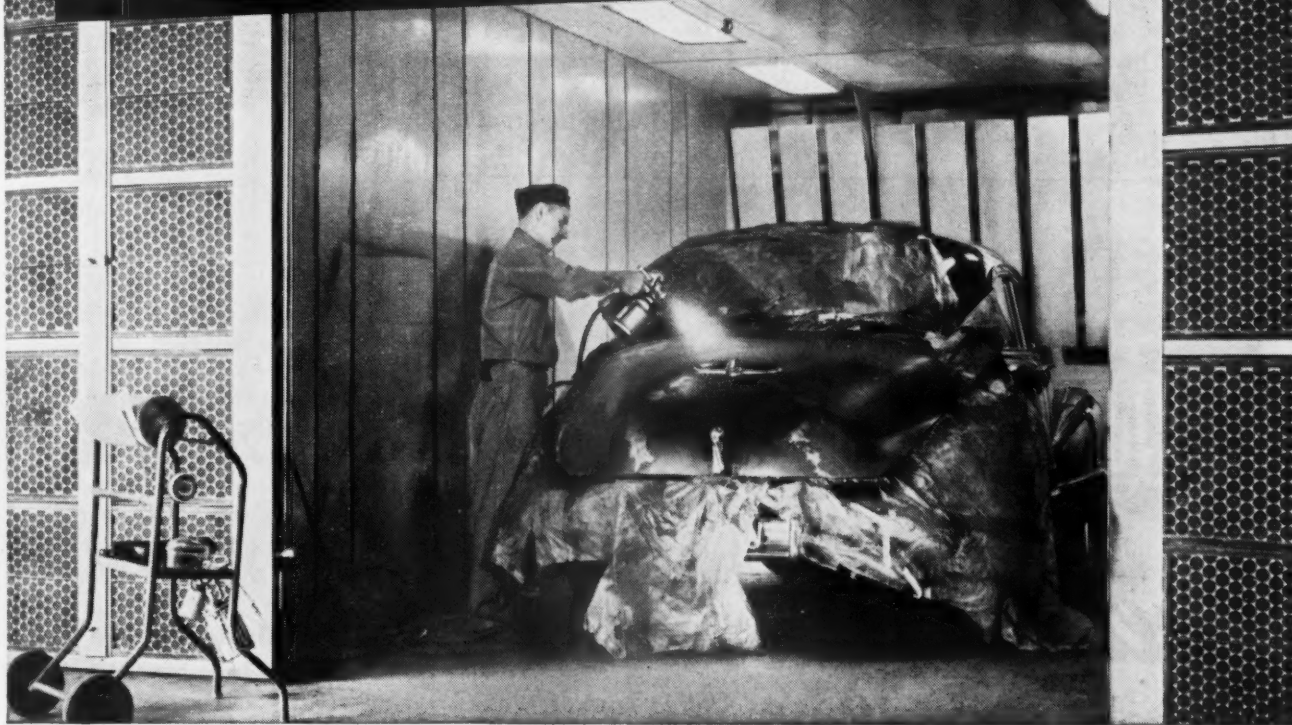


DeVILBISS



MORE BUSINESS FOR YOU

DeVilbiss products—Spray Equipment, Air Compressors, Exhaust Systems and Hose—will help you handle more refinishes, faster, at the lowest possible cost. We'll gladly pass along to you helpful data on ways to step up volume, keep costs low and duplicate factory quality in your shop. Let us help you.



HAVE YOU OVERLOOKED THIS PROFIT-MAKING SERVICE?

Here's a progressive shop that aggressively follows a planned "appearance service" program—and finds it highly profitable.

Two complete DeVilbiss Paint Shops are now needed to handle the demand—which often reaches 10-15 complete paint jobs and touch-ups a day. The factory-quality, customer-pleasing refinishes

turned out have resulted in more and more business, and consequently higher profits.

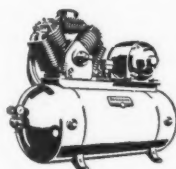
Records prove appearance services can easily account for *one third* of service department volume! There's no doubt that *you* can increase your refinishing jobs and profits with a complete DeVilbiss Paint Shop.

Your DeVilbiss distributor or Branch Office will gladly give you expert advice on DeVilbiss products—Spray Equipment, Air Compressors, Exhaust Systems and Hose—for your refinishing operations. Call today!

THE DEVILBISS COMPANY
Toledo, Ohio

Windsor, Ontario • London, England
Santa Clara, Calif.

Branch Offices in Principal Cities



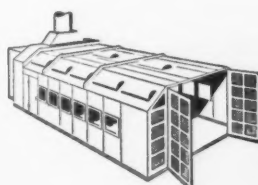
Air Compressors



Hose and Connections



Spray Guns



Spray Booths

FOR BETTER SERVICE, BUY

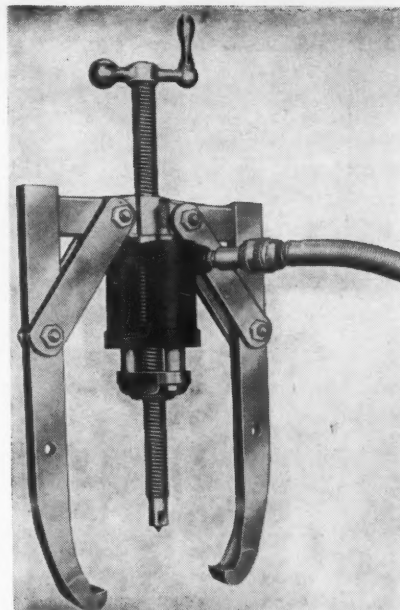
DEVILBISS



which an eight-ounce can is adequate for cooling systems up to 23 quarts capacity. The seal is non-fibrous and employs an alloy of finely powdered metals in suspension in a liquid vehicle which penetrates cracks and leaks and leaves them with a powdered metal to make a permanent leak-tight seal.

490. Hydraulic Pullers

Owatonna Tool Company announces that the three most popular sizes of OTC Grip-O-Matic pullers can now be used with the new OTC power-twin hydraulic puller. The manufacturer states that only slight changes are necessary to change over OTC pullers to fast operating hydraulic



power. The Power Twin ram can be easily detached from the Grip-O-Matic puller and used on OTC push pullers or on a bench or pedestal press. The firm states that present OTC pullers can be converted to hydraulic power with only a few additional parts.

491. Washing Device

Jetomatic, Inc., have developed a new car washing device known as the "Uni-Track," which operates on one track instead of the conventional two. The manufacturer emphasizes its simplicity, both in installation and operation. The Uni-Track can be moved and relocated as space needs vary. This machine sprays, soaps and then rinses the car, cab or panel truck with its own 125 pound auto pressure—automatically.

(Continued on page 88)

Quick and Steady Profits

Atlas 10" LATHE

RECONDITION
AN ARMATURE
IN 8 MINUTES...
HANDLE ALMOST
50 OTHER JOBS.
IN LESS TIME
WITH MORE PROFIT!



Are you sending good profits outside when you could do the work in your shop and keep the full profit? With a low-cost precision Atlas 10" Lathe you can recondition armatures, grind valves, reface water pump seals, handle more than 40 other jobs by actual count... and make money on every one!

In the face of new car shortages, now's the time to equip your service department. Be ready... be economical... be smart!... get your Atlas 10" Lathe right away, while you can. Start those extra profits coming in immediately. Write for name of your nearest Atlas jobber and latest catalog.



SEND
FOR
FREE
COPY!

40TH YEAR
Atlas

ATLAS PRESS COMPANY
1288 N. PITCHER ST.
KALAMAZOO, MICHIGAN
DEPENDABLE QUALITY TOOLS



"Don't come crying to me about it, go spit back at the carburetor."



*Advance . . .
and be recognized!*

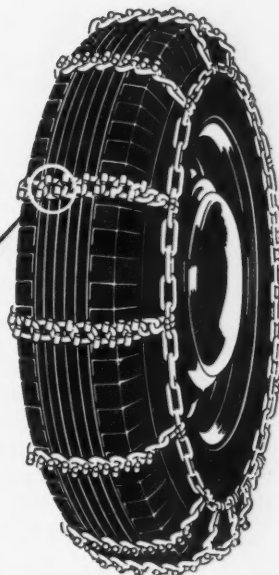
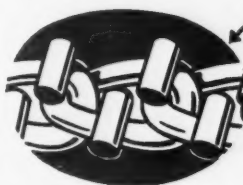
**McKAY is the
ONE SURE WAY
to more
TIRE CHAIN SALES**

McKAY Multi-Grip TIRE CHAINS

Give **"TWICE THE ROAD BITE"**
of any other Tire Chain

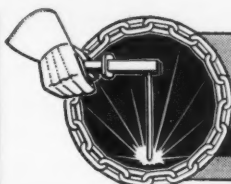
Here's why

- ① 312 Gripping Points Dig Into Ice & Snow
- ② 156 Links Have 2 Case-hardened Cross Bars Each for More Wear
- ③ More Surface Contact for More Road Grip



**OTHER
McKAY PRODUCTS**

- McKay Metal-Fil
- McKay-Rod Electrodes
- Mild and Stainless Welding Electrodes
- Industrial and Commercial Chain



THE McKAY COMPANY
PITTSBURGH, PA.

WELDING ELECTRODES . . . COMMERCIAL CHAINS . . . TIRE CHAINS

See your jobber
for
McKay Chains
Now!

462 McKAY BUILDING

PITTSBURGH 22, PA.

492. Duesenberg Book.

Motor Classic Bookhouse is publishing a 165-page book on the Duesenberg automobile. Included in this volume are 225 photos and sketches of custom body styles and interiors, plus over 50 photos, schematic and line drawings of mechanical details. Written by J. L. Elbert, this book includes a

full scale reproduction of the entire technically detailed 1929 catalog and covers the history of this famous motor car from beginning to end.

493. Spray Gun

Binks Manufacturing Company has designed a light weight spray gun which is claimed to use nozzle



set-ups that are standard on most Binks heavy duty spray guns. The gun body of Model 29 is an aluminum casting, which reduces the weight of the gun by 20 ounces. The spray gun has a cartridge type air valve for quick replacement. The operator or mechanic can remove the old cartridge and insert a new one and the gun is again ready for use.

494. Fire Extinguisher

American LaFrance Foamite Corporation announces the new one-quart Air Pressurized Fire Extinguisher which discharges vaporizing liquid fluid for extinguishing both flammable liquid and electrical type fires. It aims and operates like a gun.

495. Body Brochure

Minnesota Mining & Manufacturing Company is making available a new brochure called "Thar's Gold in Them Thar Bodies." Designed to help in selling more autobody repair and refinishing



work, this booklet points out that most autobody refinish business consists of major repair jobs, leaving a large potential volume in minor repair work to be sold.

new OTC HYDRAULIC SLEEVE PULLER & INSTALLER
FOR TRUCKS • TRACTORS • POWER UNITS

pull or install cylinder sleeves with the OTC POWER-TWIN in minutes instead of hours . . .

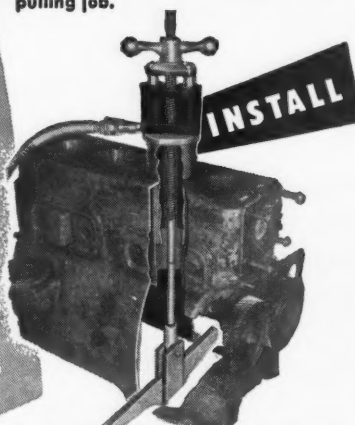
"POWER-TWIN PAYS FOR ITSELF IN ONE DAY'S OPERATION."

These are the actual words of a shop owner the first time the Power-Twin Hydraulic Sleeve Set was used in his shop. You too will be amazed at the ease and speed with which this new OTC tool removes and installs wet or dry cylinder sleeves. What used to be a "Tough Job" now becomes simple with the sensational OTC Hydraulic Sleeve Set.

- Converts all OTC Sleeve Pullers to hydraulic power by the addition of only a few parts.
- Removes and installs either wet or dry 3" to 6" sleeves faster, easier.
- Operates on over 200 makes and models of trucks, tractors, busses and power units.
- Fully adjustable to provide clearance regardless of position of cylinder head studs . . .
- Centers accurately over bore.



Removing either wet or dry sleeves is simple with the new OTC Hydraulic Puller. Above is typical sleeve pulling job.



Dry cylinder sleeves replaced quickly and easily without damage or distortion with the new OTC Sleeve Installing Set.

OWATONNA TOOL COMPANY
321 CEDAR STREET • OWATONNA, MINNESOTA

Never Accept Unbranded Brake Lining



Look for this Stamp of Quality

Did You Know?

Did you know that when heavy vehicles make fast stops, the brake lining is subjected to—

Terrific Heat

—often as hot as molten lead—hot enough to heat a 6-room house—certainly enough to soften up the bonding agents* in an inferior brake lining, and cause loss of friction.



Tremendous Pressure

Each time you press the brake pedal, your foot weighs a ton—so far as the brake lining is concerned. This tremendous pressure compresses inferior brake linings to the point where they may fail in an emergency.

High Rubbing Velocity

As the brake starts taking hold, the drum speed may be as much as 3000 feet a minute—fast enough to rub away the surface of inferior linings, causing them to wear out quickly and require frequent adjustment.

*Thermoid bonding agents are specially compounded to withstand peak operating temperatures.

Nobody can tell good brake linings from poor—by the looks or feel.

The only way to be sure of getting dependable brake lining is to insist that it show the name of a well known manufacturer, whose products you *know* have passed the most rigorous tests.

When you buy brake lining or exchange brake shoes, look for the name "Thermoid" . . . and give your customers "the safest thing on wheels."

Thermoid

Thermoid Company • Trenton, New Jersey

the standard of precision processing in brake lining, brake blocks, hydraulic fluid, cylinder assemblies, hydraulic brake parts.

This 1950 Dodge Has A Chronic Spark Knock

We have a 1950 Dodge which developed a spark knock at 12,000 miles and has been doing this for about 7000 miles.

What We Did:

We changed the vacuum control

and distributor and later overhauled the engine and replaced the Number 1 piston that was cracked. Also, we have tried distributors from other cars and all kinds of gasoline. The car has 100 pounds compression on each cylinder and has 16 to 17 inches of vacuum. The valve timing has been checked and is O.K. Sub-

mitted by: Norman Helms, Route #2, Box 205, Marion, Wisconsin.

We Suggest:

It is possible that the markings on the damper are incorrect. I would suggest retarding the spark about three degrees for a try. Since the engine has been apart and there is no carbon in it and the compression seems to be right, the only thing it could be would be the ignition timing. Therefore, set the timing so that it has a slight ping on a hard pull with a wide open throttle.

How Ampere-hour Battery Ratings Are Arrived at

What is meant by the statement: "The battery has a 110 ampere hour capacity?" Submitted by: Vincent Mastrianni, 740 Catherine Street, Utica, N. Y.

When a battery is rated at 110 ampere hours capacity, that means it will take 11 hours to discharge with a 10 amp load on it. If it has a 200 ampere rating with a 10 ampere discharge, it will take 20 hours. So when a battery is selected you should use whatever rating the car manufacturers recommend.

This Shop is Stumped By a Hydra-Matic Whine

We have a 1947 Series 62 Cadillac in which the Hydra-Matic (Continued on page 92)



Watchful

against temperatures that kill efficiency



DOLE DV Thermostats specially designed to operate positively in pressure-cap as well as atmospheric cooling systems: AND Dole Adjustables for varying ranges: summer, alcohol or permanent anti-freeze.

Profitable

for you and your customers



Make sure your service men realize there is a temperature range within which any motor performs better in pick-up, gas and oil economy, etc. — and Dole Thermostats automatically maintain this peak efficiency by allowing greater or less circulation in the cooling system.

It pays to consider every car a prospect after a few thousand miles. So *make thermostat replacement part of every cooling system check-up.*

DOLE DV Thermostats

CONTROL
WITH
DOLE

THE DOLE VALVE COMPANY • 1901-1941 Carroll Avenue, Chicago 12, Illinois
Representatives in Principal Cities

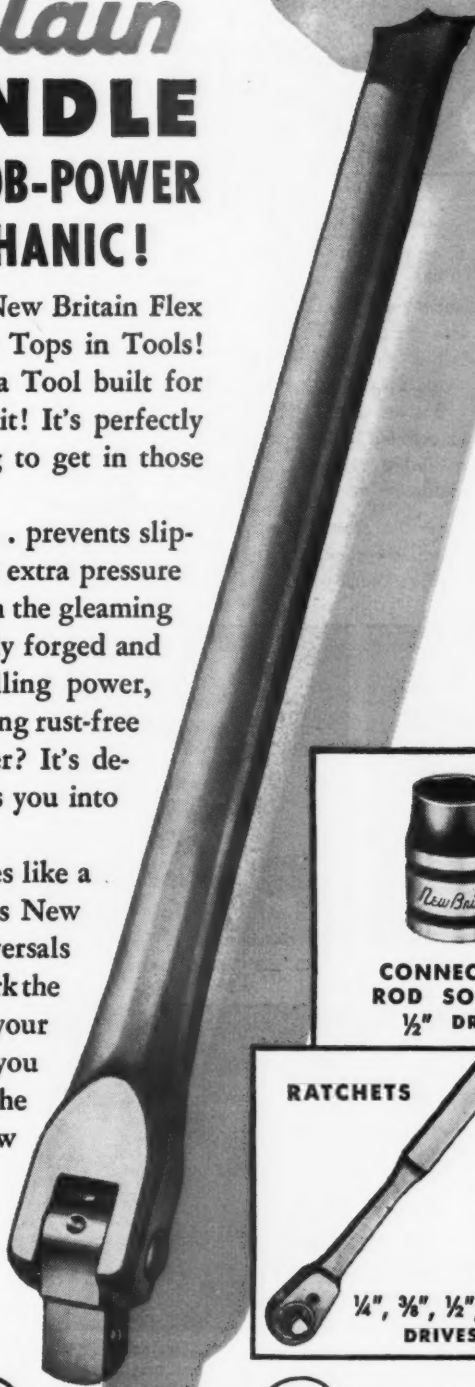


New Britain FLEX HANDLE A HANDFUL OF JOB-POWER FOR EVERY MECHANIC!

When you get your hands on a New Britain Flex Handle you'll know why they're Tops in Tools! Their solid feel tells you here's a Tool built for rugged, fast action, and lots of it! It's perfectly balanced, slim and long reaching to get in those tough spots!

Feel that hand-hugging grip . . . prevents slipping and fumbling when you put extra pressure on tough nuts. Run your eye down the gleaming shank of finest alloy steel, expertly forged and heat treated for tremendous pulling power, triple plate, chrome finished for long rust-free life. See the five position adapter? It's designed to work at all angles, gets you into tight places, around obstacles!

Here's brute power that handles like a baby . . . team it up with famous New Britain Sockets, Cross Bars, Universals and Extensions to turn out fine work the fast, easy New Britain way. Call your NAPA Jobber, he'll gladly show you the great New Britain Line. The New Britain Machine Co., New Britain, Conn.



SOCKETS
1/4", 3/8", 1/2", 3/4"
DRIVES



UNIVERSAL JOINTS
3/8", 1/2", 3/4"
DRIVES



**CONNECTING
ROD SOCKETS**
1/2" DRIVE

EXTENSIONS



1/4", 3/8", 1/2", 3/4"
DRIVES

RATCHETS



1/4", 3/8", 1/2", 3/4"
DRIVES

**FLEX
HANDLES**



1/4", 3/8", 1/2", 3/4"
DRIVES

New Britain

GREATER STRENGTH • BETTER FIT HAND TOOLS

Clearing House Continued from Page 90

transmission has always performed satisfactorily except for a slight whine when it is idling.

What We Did:

We adjusted the transmission since the kick down unit quit working. All the adjustments were made to factory specifications and the unit works O.K. but

now we have a steady whine at all speeds and under all conditions which was not there before. Submitted by: John J. Eberhardt, Jack's Service Garage, North Main Street, Homer, New York.

We Suggest:

Usually when a whine appears in transmissions it is due to the

governor gears. These gears are made of bronze and any wear at all in them will cause a whine. So therefore, I would suggest that you install new gears.

Correcting Noisy Tappets On Late Model Buicks

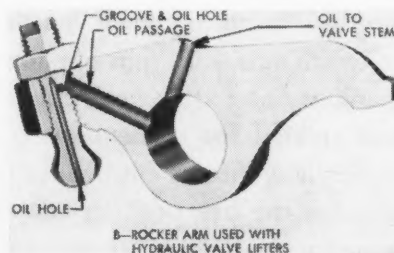
We would like to know how the lifters and the rocker arms receive their oil on Buick engines equipped with hydraulic tappets. We have had several of these engines that developed noisy tappets.

What We Did:

We tried changing the oil filter and the oil but that didn't seem to help. Submitted by: Joe Hagan, 5702 Westminster St., Philadelphia, Pa.

We Suggest:

The oil to the lifters is fed through the rocker arm shaft, down the push rod into the lifter. Noisy lifters are usually caused

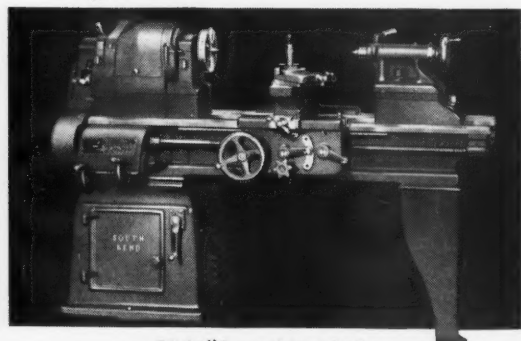


by dirt particles entering them and usually they have to be taken out of the engine and cleaned. In some cases flushing the crankcase and adding any of the new HD oils will correct the noise.

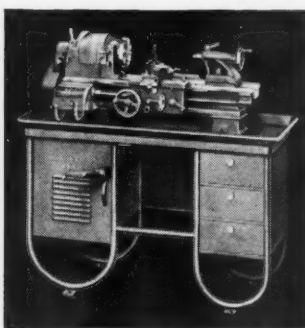


Shop versatility pays off in more service work—and the capacity to handle a greater variety of jobs. A South Bend Lathe will give this to your shop. These precision-built lathes are ideal for all types of automotive work. There is a size and type for every need—6 sizes, 9" to 16-24" swings. A complete assortment of attachments is available to give these lathes maximum versatility.

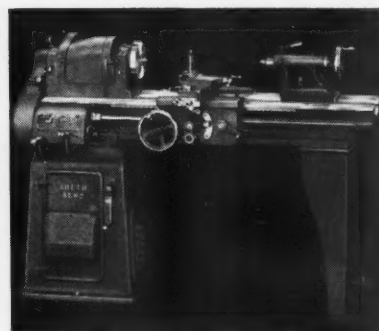
How To Run A Lathe—every mechanic needs this helpful operator's handbook. 128 pages. 25c.



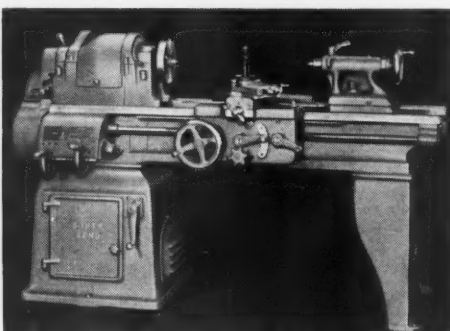
16-24" Large Swing Lathe



10" x 3' Quick Change Gear Bench Lathe



13" x 5' Quick Change Gear Lathe



16" x 6' Quick Change Gear Lathe

SEND INFORMATION CHECKED:

☐ 9" and 10" BENCH LATHES

☐ 10" to 16-24" FLOOR LATHES

☐ 15" and 17" TURRET LATHES

☐ 14" DRILL PRESSES

☐ 7" BENCH SHAPERS

Name _____ Company _____

Street _____ City & State _____

Building Better Tools Since 1906 • SOUTH BEND LATHE • South Bend 22, Indiana



Complete Replacements

for ALL Vacuum Windshield Wiper Motors*

WITH ONLY

6 ANCO® Models

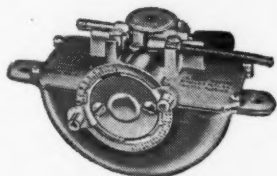


REPLACE ALL

- CABLE LINKAGE MOTORS
- BAR LINKAGE MOTORS
- DIRECT DRIVE MOTORS

MAXIMUM SERVICE with MINIMUM INVENTORY

Now only six models ANCO Windshield Wiper Motors replace all original equipment vacuum motors on all vehicles 1935 and later models—(except only a few very rare and long obsolete vehicles).



OPEN STOCK

All ANCO Motors—as well as ANCO Blade and Arm products—may be ordered ... in any quantity needed ... from open stock.



KOVERS-ALL MOTOR SERVICE SET-UP

This factory-sealed carton starts dealer with everything required for full-range service.



MOTOR SERVICE CABINET

This all-metal cabinet contains an "organized" stock of everything required for dealer's full-range service. Cabinet may be used separately or combined with ANCO All-Car Service Windshield Wiper Blade and Arm Cabinet making a complete windshield wiper service department.

BONDED

... to please owner as long as he keeps the car on which installed ... Lots more power ... Lots less stall ... Adjustable blade travel setting compensates for linkage wear and prevents blade slapping against edge of windshield.

THE ANDERSON COMPANY

GARY, INDIANA

Makers of Accepted Automotive Products Since 1918

We were not too young after all



Reading time: 1 minute

"Too young."
"Not enough experience."

The factory executive reluctantly passed the decision on to the McFail brothers. And it was bad news. Joe, now 26, and

Jim, two years younger, were aiming for a Dodge dealership.

Experience? They had practically been born in the business—their father was a Dodge dealer. After their army discharge they first sold surplus vehicles; then used cars. Profits and savings soon gave them the capital needed to step into the "big league."

Experience? Yes, the factory executive thought they had a remarkable record for their age. But, he explained, "You need new car sales experience so we'll be sure you're ready."

Jim's expression was pretty bleak. "It's bitter medicine, Jim," Joe explained, "but let's get out and get that basic training like we did in the Army. Let's start selling new cars now."



"You mean sell our used car lot? Work for peanuts?"

"To start with maybe, but we'll make it up once we get our own Dodge dealer set-up."

So the brothers joined new car dealers. Four months later Joe had advanced to sales manager. Both boys were stacking up impressive sales records.

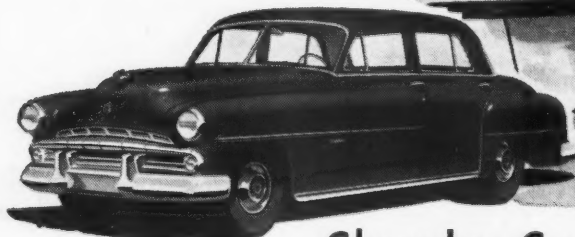


In little more than a year they won factory approval for a Dodge dealership in a thriving mid-west city. Sales climbed from the first—and so did their service business.

"We like the business and have been pretty successful," Joe will admit. "Our experience backs up the belief we had that the automobile business offers those who put in the necessary

time and effort an excellent opportunity for success."

Write for our free booklet containing a number of these stories of accomplishments by enterprising men. Chrysler Corporation, 341 Massachusetts Ave., Highland Park 3, Mich.



Chrysler Corporation

PLYMOUTH • DODGE • DE SOTO • CHRYSLER • DODGE "Job-Rated" TRUCKS
Fine Cars of Great Value

Take Jobs

Continued from Page 44

going to bring their business to that man if they have to come miles to do so."

Versaw has had to purchase no special tools to work on such cars, for he has found that standard American tools can do all of the work. Repair parts can be obtained from any number of strategically located agencies scattered all over the country. If the car owner does not have the spare parts he will always know where to get them.

He points out that sport car owners don't expect to "get off cheap" on their repair bills as inexpensively as the Ford or Chevrolet owner does. They want quality work and will go to the garage where they can get quality and understanding. Any garage man who has made such a specialty of handling these cars will also get all of the lubrication and maintenance work on these cars, he adds, for sport car owners have no desire to obtain service station lubrication when they can have the work done by experienced mechanics.

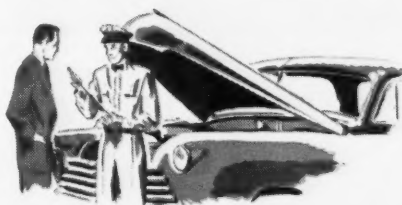


The "hot rod" business is also something Versaw believes the independent garage owner will find well worth going after. He has plans for going into this in a big way in the future and is making up a special "hot-rod" engine com-

(Continued on page 96)

**It pays to tie up with the
Best Known, Fastest Selling Line—**

FRAM Replacement Cartridges



MAKE MORE SALES with Fram. Fram Cartridges fit most every make oil filter on the market. Give your customers tops in performance. Keep their engines clean for plenty of extra trouble-free miles. Yes, Fram sales build your profit and customer goodwill. Selling Fram helps you nail those profitable extras, too. When you ask "How's your Oil Filter?" it gets you under the hood in the profit zone.



MOTORISTS KNOW FRAM! They've learned about Fram over the years, from giant billboards along key highways from coast to coast . . . from powerful advertisements in *Life*, *Saturday Evening Post*, *Collier's* and *Popular Science*. They've learned to rely on Fram for the best in filtration . . . over 15 million motorists now use Fram!

WORLD'S LARGEST

MANUFACTURER of oil, air, fuel and water filters for automotive, aeronautical, marine and industrial fields—that's Fram! Years of research, development and experience in actual service have produced the finest filtration equipment money can buy . . . and it's yours to recommend and sell, with confidence. See your Fram Distributor today!

FRAM CORPORATION, Providence 16, R. I.
In Canada: J. C. Adams Co., Ltd.,
Toronto, Ont.

Cash in on a New

Fram Sales Miracle

Fram dealers everywhere are cashing in on the sensational Radiator & Water Cleaner that stops formation of rust and scale and removes particles from cooling systems. It's a "natural" for over 50,000,000 cars, trucks and tractors needing cooling system protection! And every one you install starts an endless chain of profits from Replacement Cartridge sales.



plete with every possible accessory for display in his window. He points that "hot rod" car ownership is now getting to the point where most of the car owners do not do their own work and have the money to spend on this type of what to them is an inexpensive sport car.

Capitol Automotive is also build-

ing a nice fleet business in the Lincoln area. Versaw's program for getting this business begins with the personal car of the fleet executive of the business firm. He does everything possible to get this car into his garage for service and maintenance, even to special deals, for he has found it to be the most profitable opening to fleet business.

"Get the fleet manager's own car into your garage no matter what you have to do to get it there," he advises, "and see to it that it receives the maximum quality work at the very lowest price you can give him. Satisfy him with his personal car and the door is wide open for you to get that company's fleet business."

Versaw offers no discounts for fleet business under his standard charges. He explains that as long as the garage is giving maximum quality of work discounts are not necessary. Little services are important though, he points out, such as keeping a fleet and individual card file on each vehicle in the office and doing the work of making certain trucks receive proper periodic checks by calling the fleet manager each time the need for such routine service comes up on the card file. He keeps one also for fleets so that both he and the fleet manager can have a ready picture of maintenance of the entire fleet at all times.

A good card file of all customers' cars is also of the utmost importance to profitable garage management, he maintains. In his own system a card is kept for every customer's car and this shows the name, telephone number, make, date of service, shop order and amount. By having all shop ticket orders on the card they can be located immediately in the file for a thorough analysis, before the customer, of everything done to his car since he first brought it into Capitol Automotive.

He believes that it is important for the independent garage owner to treat each customer as an individual and to encourage them to go back into the shop and talk to the mechanics working on their cars. The customer, he points out, is actually dealing with the mechanic rather than the shop owner, and has more interest in what the mechanic has to say about his car and the job at hand.

A clean shop is very important, he believes. It takes so little effort to keep a shop clean, Versaw declares, and make it a place even women customers will not shy away from, that the small cost is many times repaid by the closeness of customer to the shop.

BRUNNER AIR COMPRESSORS

"We have always felt that Brunner Air Compressors offered the biggest dollar value in performance, dependability and service life but...

don't take our word for it...

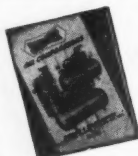
Most Brunner customers 'sold' themselves by making point by point comparisons. Obviously, we'd like to see you depending upon Brunner Compressed Air too and for that reason invite your request for a Brunner catalog as the first step in getting acquainted."



J. W. THOMAS
Sales Manager



A. D. SULLIVAN
Chief Engineer



SEND IT. I'd like to see and read the reasons why Brunner Air Compressors are selected by other men who recognize the importance of compressed air in the successful operation of their business.

Name _____

Company _____

Address _____

City and State _____

MA

BRUNNER MANUFACTURING COMPANY, UTICA 1, NEW YORK, U.S.A.



- SINGLE STAGE 1/4 HP. TO 2 HP.
- TWO STAGE 1 1/2 HP. TO 15 HP.

BRUNNER AIR COMPRESSORS have been in automotive service for 45 years.



"I proved to myself that there's
50% MORE PROFIT
 IN
LION Nokorode"
 UNDERCAR SEALER AND SILENCER

**"Concentrated Lion Nokorode gives me
 50% more profit on each drum!"**

Most ordinary undercoatings have a big percentage of solvent. When sprayed 1/8" thick they dry about 1/16" thick. Lion Nokorode *sprays* 1/16" thick—*dries* about 1/16" thick. Result: you do 50% more cars per drum! Yet Nokorode costs no more.

**"Lion Nokorode is easier, quicker
 to apply—saves labor costs!"**

Nokorode is *uniform* for smooth application. It's *homogenized*—won't clog guns. That means you do *more* jobs at *less* labor cost. It's *naturally black*—no useless coloring added.

Made and Guaranteed by

LION OIL COMPANY
 EL DORADO, ARKANSAS



LION Nokorode

IS NATIONALLY ADVERTISED IN

THE
 SATURDAY
 EVENING **POST**
 AND **TIME**

**Powerful, Consistent Advertising
 That Pre-sells Your Customers!**



**"I clipped this coupon for full
 details on Lion Nokorode's
 profit plan!"**

LION OIL COMPANY, El Dorado, Arkansas

Please send me complete details on how I can increase my undercoating profits with Lion Nokorode Undercar Sealer and Silencer.

Name

Street

City State

Brand of undercoating I am using now, if any

Painting Problems . . . Continued from Page 68

and lots of clean rags. When fish-eyes occur, there is no remedy but to strip the paint down to the metal, clean the surface as described above and proceed to re-finish the area in the prescribed manner.

Flaking is caused by painting over a surface which has not been absolutely cleaned of wax, polish

or grease. When paint flakes, the finish must be stripped down and the surface thoroughly cleaned before refinishing again.

Flat spots, or dull portions of a freshly painted area may be caused by applying the color coat before the surfacer has dried completely. This allows the finish to soak into the wet surfacer, thus

causing a dull appearance. The remedy is to take the paint down to the bare metal and to refinish again; being sure to allow sufficient drying time for the surfacer.

Lifting is caused by applying lacquer over enamel. The solvents in the new paint dissolve the older film. Also, if enamel is applied over enamel which has not been properly cured, cracking will occur. Another cause for lifting is painting over wax, grease or polish. The rule stands, always have the surface thoroughly cleaned before applying paint. If an area of paint lifts, the section should be stripped down to the surface which is adhering properly and re-finished.

... TUTHILL SPRINGS ...

FIRST

For 70 years, Tuthill has been first in keeping pace with newest developments in the manufacture of replacement springs. Now . . . treated with MOLYBDENUM DISULPHIDE (MoS_2) . . . Tuthill is first to offer springs that won't squeak or gall!

LAST

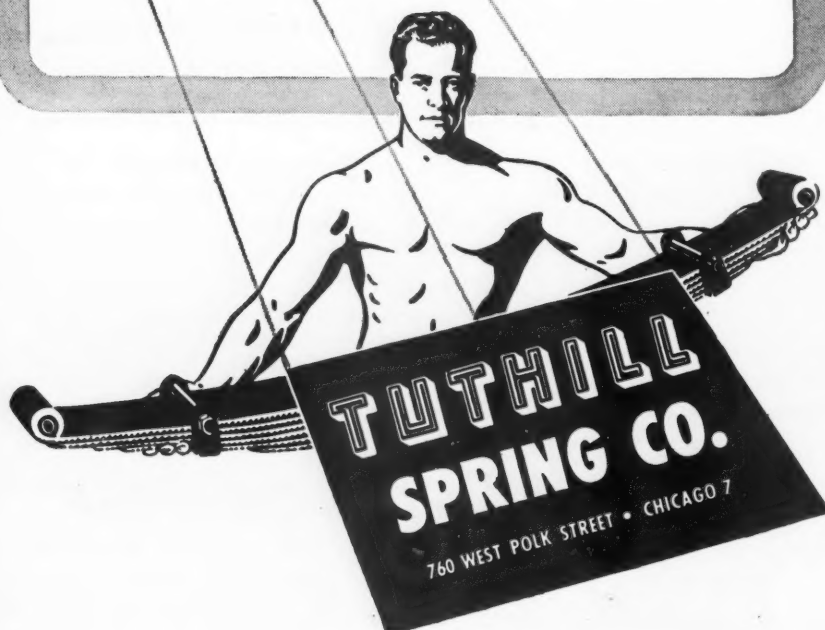
Since 1880, only the finest quality alloy steel obtainable has been used in manufacturing Tuthill Springs . . . heat treated for greater strength, to take more abuse and last years longer!

ALWAYS

Tuthill Springs are profitable to handle . . . always in demand because they're dependable and priced right.

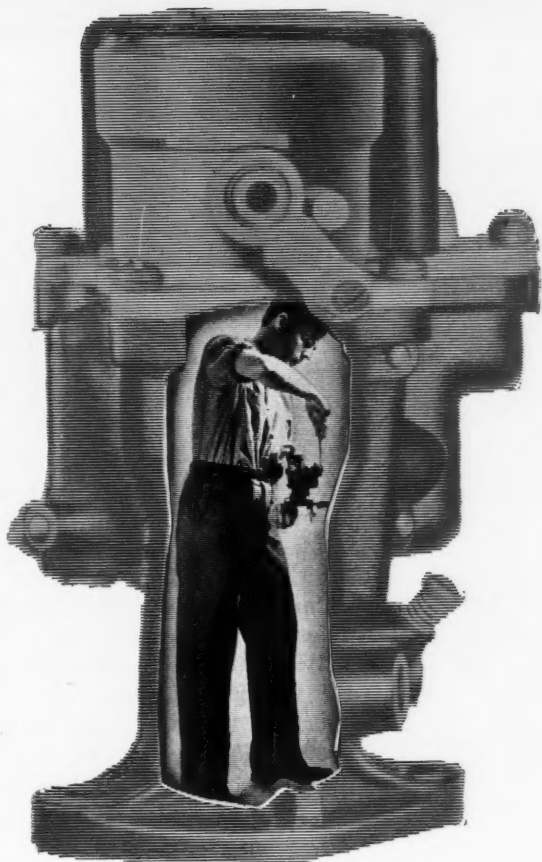
To get premium quality without paying premium prices—whether it's a spring for heavy-duty trucks or easy-riding cars—you can rely on Tuthill first, last, and always!

Ask your Jobber for a FREE copy of our Car Application Wall Chart.



Orange peel is caused by improper atomization or too rapid drying. If the air reduction is incorrect and orange peel—skin surface may develop. If the condition is not too serious, it can be compounded out when the paint is sufficiently hardened. However, if it is too bad, the surface will have to be sanded and compounded smooth and refinished again. To avoid orange peel, use the proper air pressures at the gun and follow thinning instructions carefully. Also, do not spray on a hot surface (which causes excessively rapid drying) as this may result in orange peel. The hot application of lacquer and enamels will virtually eliminate orange peel, if the proper procedure is followed.

Peeling is caused by lack of adhesion, due to grease, oil, polish, (Continued on page 100)



He's making money in there!

Look what happens to you when you take on the Hygrade Fingertip System of Carburetor Rebuilding:

A complete sales promotion program in your locality builds you up as "the shop that knows carburetors inside out".

Ads in Popular Science and Popular Mechanics mean that one out of 6 car-conscious men will be looking for your shop — the Hygrade System Shop.

You get everything you need to rebuild all carburetor makes, right in your own shop: the famous Hygrade Manual, tools, instruments, kits.

It's easy to become an expert:

With the revolutionary Hygrade System, you'll be able to rebuild a carburetor the first time you try, and after 5 or 6 jobs, you'll be expert at it.

Interested? Just write "FINGERTIPS" on your letterhead, billhead or business card and mail to: HYGRADE, 37-18 Northern Boulevard, Long Island City 1, New York.

These Hygrade-System Shops say:

"... it pays to know carburetors inside-out"



"Saves us as much as 30 minutes on a carburetor job" report the McDermotts of College Point, N. Y.



"The best idea for repairing carburetors we've seen yet" say Francis and Larry Fugliese, Oakville, Conn.



"Helps us get more carburetor repair jobs with less effort" reports E. C. LaDou, from San Diego, California



"More recommendations because you do an A-1 job of rebuilding" reports Harold Souder of Covington, Ky.

HYGRADE FINGERTIP SYSTEM OF CARBURETOR REBUILDING

by the makers of Blue Streak Ignition Products

"We could not do without SERVI-CARS"

— Says C. E. JAEGER, Vice Pres. TREVELLYAN BUICK CO.
St. Louis, Missouri



Trevellyan Buick Co.
BUICK MOTOR CARS

Harley-Davidson Motor Co.
Milwaukee, Wisconsin

Gentlemen:

We are now the users of two Harley-Davidson Servi-Cars in our Service Department. We were formerly using only one unit, but the demand of our Service Department for an additional unit to take care of the increased business, made it necessary to add another unit.

We find that Harley-Davidson Servi-Cars are indispensable in bringing in new business as well as taking care of our regular customers, besides being very handy for many other errands such as getting car licenses, parts and supplies. The traffic congestion prevailing at this time, makes it very necessary for us to use the Servi-Cars as they can get around, make deliveries, with the least amount of time.

The Servi-Cars make it easy for our customers to do business with us, with no inconvenience to them. No customers feel we are too far for them to have their cars serviced by us. With the great amount of service work handled in our Service Department, it is no problem to get completed jobs out of the way. Overhead on our service equipment in our shop is also reduced by being able to keep it busy by handling more cars. In other words, we can go out and get service work to keep our shop equipment busy.

Advertising value and customer goodwill that we are able to hold by using Harley-Davidson Servi-Cars make them indispensable to our Service Department and we could not and would not do without them.

Yours very truly,
TREVELLYAN BUICK COMPANY

C. E. Jaeger
C. E. Jaeger



HARLEY-DAVIDSON MOTOR CO., Dept. MA
Milwaukee 1, Wisconsin

Send for your free copy of this Servi-Car booklet. It shows you the way to new profit opportunities.

SERVI-CAR

SERVICE SELLS MORE SERVICE

Painting Problems

Continued from Page 98

wax, or rust on the surface before painting. The remedy is to strip down the paint to the surface from which the peeling occurred, clean the area properly and then refinish. Peeling may also occur over a soldered spot, due to the presence of acid. Always wash over a soldered area with a mixture of equal parts of water, alcohol, ammonia or any solution prepared for this purpose. Then wipe clean and dry.

Pin-holing or pitting is generally caused by oil passing through the gun with the air. It lands on the surface, is covered with paint and cannot evaporate before the paint dries. The paint dries, leaving a number of little craters. It can also be caused by the trapped solvents which have not evaporated before the next coat is applied. The only cure is to sand the surface until it is smooth and refinish. But to avoid a repeat performance, drain the air separator daily to eliminate moisture. Determine where any possible oil may be leaking into the compressor to cause it to be passed through the gun. Be sure that the solvents for the previous coat are dry before applying the other coat and do not apply finish so heavily that all solvents cannot evaporate.

Runs or sags result from excessive thinner, too heavy coats or too wet coats. Runs can be cor-

(Continued on page 102)



"Yeah, and if we'd write this up as a little news story for Motor Age they'd probably call us liars!"



HERE'S THE EASY,
BIG-PROFIT WAY
INTO THE
CARBURETOR SERVICE
BUSINESS

Get this great new

ROCHESTER CARBURETOR

Service Parts Cabinet

Every service station will want this Rochester Carburetor Service Parts Cabinet . . . it provides a quick, sure way to gain profitable carburetor service business.

The assortment consists of 35 super-active service parts for Rochester Carburetors—original equipment on Chevrolet, Oldsmobile, and Pontiac. The entire deal is being sold at the price of the parts only. The cabinet drawers, cardboard boxes, two gauges (one for Pontiac and Chevrolet, one for Oldsmobile) and a service manual are gratis.

It's a unit that is tailor-made for your convenience. Call your distributor, or write us today.

Top Drawer:

1. Gasket and air horn kits.
2. Two gauges; one for Pontiac and Chevrolet and the other for Oldsmobile.
3. Service manual including application date of material in cabinet, 9 A-30 net price schedule and service and instruction data.
4. Return mailing card to acknowledge receipt of cabinet in good condition.

Here's what you get

Middle Drawer:
Repair kits for Chevrolet, Oldsmobile and Pontiac.

Bottom Drawer:
Twenty-six popular fast-moving service parts packed in standard AEA cardboard containers.

ALL IN ONE CONVENIENT
CABINET

SELL AND SERVICE ROCHESTER CARBURETORS
ORIGINAL EQUIPMENT ON

CHEVROLET • OLDSMOBILE

1950-51 models

1949-50-51 models

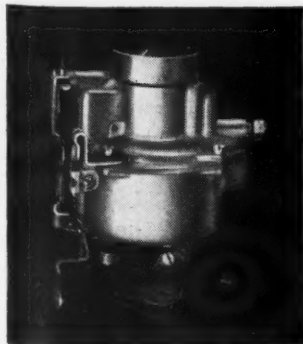
PONTIAC "6" • CADILLAC

1951 models

1951 models



ROCHESTER CARBURETORS—
A UNITED MOTORS LINE
Available Everywhere Through
UNITED MOTORS DISTRIBUTORS



ROCHESTER PRODUCTS

DIVISION OF GENERAL MOTORS CORPORATION, ROCHESTER, NEW YORK

Painting Problems . . . Continued from Page 100

rected by stippling it out with a soft brush and then smoothing the area with a mist coat. After a run has been dried, use a razor blade to remove the excess and then compound that section. Sometimes, when a run is bad, sanding and refinishing is the best remedy. Runs can be eliminated by thinning according to the manufacturer's

recommendations. The hot-application method of refinishing, when properly performed, will usually eliminate the problem of runs and sags.

Wet spots, areas which do not dry as quickly as the rest of the finish, are generally due to the presence of oil, wax, or grease on the surface which was painted.

Sometimes wet spots are caused by a film left on the surface which was wiped with a gasoline saturated rag, when the gasoline has anti-knock lead compound or top oil in it. Also if the undercoats area applies. If you have a wet spot some spots, wet spots will occur. The standard rule of applying paint only over an absolutely clean area applies. If you have a wet spot after painting an area, allow the area to dry and sand down the panel to the bare metal. Prepare the metal properly and refinish.

Wrinkling occurs only in synthetic enamels usually caused by the application of too heavy a coat, too many coats improperly dried in between or too fast drying. Proper thinning, addition of prescribed reducers for air drying and application of coats which are not too heavy will normally eliminate wrinkling trouble. If wrinkling is not too bad, it can be compounded out. More pronounced cases should be sanded down and that section refinished, making sure the above precautions have been taken.

PERFECT TUNE-UP JOBS

**...in half
the time**

TEST

COIL
CONDENSER
WIRING
FUEL PUMP
SPARK PLUGS
CARBURETOR
COMPRESSION

1 CONVENTIONAL TUNE-UP

ADJUST

SPARK PLUGS
DISTRIBUTOR
POINTS
CARBURETOR
IDLE
IGNITION
TIMING

2 DYNO-TUNE JOBS

**...Because you save
80% of the test time
using the**

Clayton

DYNAMOMETER

AS EVERY SERVICE MANAGER KNOWS... testing and checking take more than half the time required for a conventional tune-up. With the Clayton Dynamometer, all functions of ignition, compression and carburetion are tested simultaneously, cutting diagnosis time by 80%. Send the coupon and learn how every tune-up can be completed in half the time, with customer satisfaction guaranteed.

FREE!

"A PROVEN PLAN OF SERVICE DEPARTMENT OPERATION" for the return of this coupon.



CLAYTON MANUFACTURING CO. BOX 550, EL MONTE, CALIF.

MA-12

Without obligation on our part, send us the story of doubled tune-up profits.

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FIRM _____

ADDRESS _____

CITY _____

STATE _____



Studebaker Operating New Eastern Plant

Studebaker Corporation has officially opened its new \$4 million plant at New Brunswick, N. J., which will be devoted to production of components and spare parts for the J47-S23 triple jet engine. Originally, the 425,000 sq. ft. plant was planned as an assembly plant for Studebaker cars.

*Take this
Number...*

18 MILLION

That's your *pre-sold replacement market* for Moraine Engine Bearings . . . the dependable, long-lasting *original equipment* bearings on 18 million GM cars and trucks in use.

add

20 MILLION

That's how many *additional* prospects you have for Moraine Engine Bearings. Moraine now makes replacement bearings for most of America's motor vehicles.

TOTAL:

38,000,000
prospects for Moraine Engine Bearings

Stock Moraine Engine Bearings and get your share of this great market. Be ready to supply top-quality replacement bearings to automobiles that come your way.

The Bearing High Compression Demanded **DUREX-100**

Original Equipment on Cadillac, Buick, Oldsmobile, G. M. C., and other leading makes of cars and trucks.

DUREX-100 is the entirely new engine bearing that's built for today's high-speed, high-compression engines. DUREX-100 is extra tough, made to withstand the tremendously increased loads imposed by today's stepped-up designs. DUREX-100 adds owners of high-compression engine cars to your list of pre-sold replacement prospects.



THE MATRIX MAKES THE DIFFERENCE

Steel-backed middle layer (or matrix) of porous copper-nickel bonds mechanically and metallurgically with babbit overlay to give increased embedability and greater resistance to fatigue.

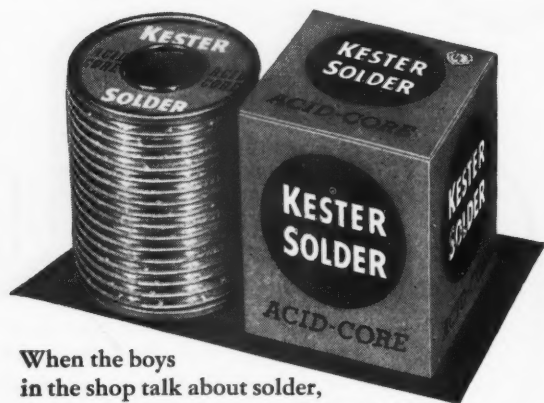


Order **MORaine**
Engine Bearings Now From Your
UNITED MOTORS DISTRIBUTOR

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When the boys
in the shop talk about solder,
they talk about Kester Acid-Core Solder;
the old reliable product now in a new package.

Easier to Use

Mechanics know that using Kester makes any soldering job easier. Kester contains the finest grades of tin and lead commercially available. The fluxes are chemically and scientifically correct.

Faster

Kester is faster to use. Mechanics prefer it and are more satisfied when using it. The work is speeded up and output is increased.

Kester Solder Company
4201 Wrightwood Ave., Chicago 39
Newark, N. J. • Brantford, Canada

**KESTER
SOLDER**



The Mechanics Standard since 1899

Pop O'Neill . . .

Continued from Page 41

Larry Tait saw that young Tommy was having trouble and came ambling over. "What's the matter, Tommy," he said. "Can't you handle it?"

"I thought so," said Tommy. "And I haven't had a trouble at all except on this valve. How can I adjust it? The other eleven are perfect but this one just won't go for me."

"Switch it off," said Larry. Then he leaned over the fender and spun the push rod with his fingers. "No wonder," he said, "you'll never get this one in adjustment. You've got a bent push rod. Better get a new one for me."

Tommy went for a new push rod and when he returned, it took Larry only a minute or two to slip it in. When they started the engine again and began to adjust the valve, the new push rod bent immediately.



"Gee," said Larry, "that is a funny one. It bent just as fast as that." He snapped his grimy fingers.

"I hope Nancy's a little bit late," Tommy thought aloud. "I promised she could be at church by four-thirty and it's after four now."

When Pop entered the shop, Tommy began to wonder about the power of telepathy. "You saved me a few steps that time," Tommy grinned. "I was about to come out

(Continued on page 106)

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DELCO



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NO. 1

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THE NO. 1 NEW-CAR BATTERY!

More Delco batteries are installed as original equipment in new passenger cars than any other make.

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THE LEADING NEW-TRUCK BATTERY!

Truck manufacturers insist on batteries that are dependable and durable. That's why Delco batteries are installed in more new trucks than any other make.

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No one knows batteries like automotive engineers, and they prefer Delco . . . to any other make in America today.

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THE NO. 1 REPLACEMENT BATTERY!

Delco batteries are the choice of millions of car owners. For reliable starting power . . . for long life . . . America knows that Delco's the buy.



DELCO BATTERIES — A UNITED MOTORS LINE

Available Everywhere Through



United Motors Distributors

to get you. We've got a sticker here. The push rods bend as fast as we put them in. What do you suppose does it"

Pop spun the rod with his finger. It was definitely bent. "Mm," he said. "Who replaced the valve caps on the springs"

"I did," said Tommy quickly. "Why what's wrong"

"Do you remember if they all

look alike" Pop asked.

"Exactly alike," replied Tommy. "Interchangeability of parts is old stuff nowadays."

"It is," Pop grunted, "when the parts are interchangeable. These aren't. You should have noticed that there is a round cap and a hexagonal cap. Hex caps belong on exhaust valves and round caps on intake valves."



Get the BEST in Connecting Rod Service

Federal-Mogul reconditioned and rebabbitted connecting rods help mechanics to put top performance into reconditioned engines. Rebabbitted rods have pure, all-new babbitt, finished to precision sizes; reconditioned rods have truly round bores, ready to take new precision insert bearings. Federal-Mogul rods mean *better overhauls!*

FEDERAL-MOGUL SERVICE (Division of Federal-Mogul Corporation)

Ask Your **FEDERAL-MOGUL** *Jobber*

"Oh," said Tommy, "I noticed that, but I thought hex were just replacement parts. They're all the same size."

"Yes," Pop agreed. "All the same size but not the same depth. Intake valve caps are shallow and exhaust caps are cupped more deeply. Your exhaust cap on the intake would take the adjustment, but the intake cap on the exhaust bumps against the guide. When you tightened the adjustment screw, something had to give. So the push rod did."

"Why do they make those caps different depth" Larry put in. "If they made them all the same, there wouldn't be trouble like this."

"The intake caps are shallow to keep oil from running down the guide and prevent high oil consumption," replied Pop. "But the designers wanted more lubrication for the exhaust valves and over-lubrication wasn't the major problem."

Once more Tommy got a new push rod and slipped it in. Then he checked the valve spring caps and found much to his embarrassment that Pop again had been right. He had put an intake cap on the exhaust all right and vice-versa. Tommy soon had the necessary switch made, and this time the engine took the adjustments perfectly and was soon purring like a well-behaved cat.

Tommy was just parking the Chevrolet outside when Jane came racing up. "Dad dropped me down-

(Continued on page 108)



Memo to mechanics

How to do it right with WILLIAMS OPEN END WRENCHES

Wrench openings are designed to allow for commercial tolerances or variations in nut and bolt manufacture. However, in selecting the correct opening size, a minimum of play should exist between jaws of the wrench and flats of the nut. Too large an opening may slip under a hard pull and will tend to round the corners of the nut causing undue wear on the jaws of the wrench.



CORRECT FIT

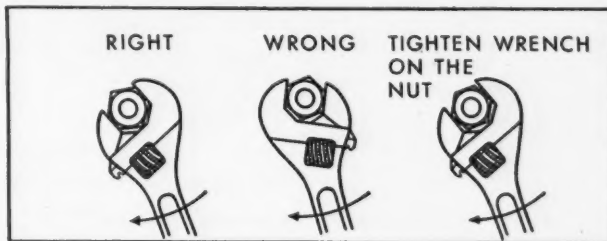


IMPROPER FIT

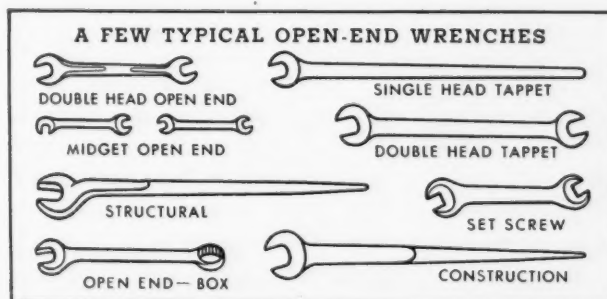
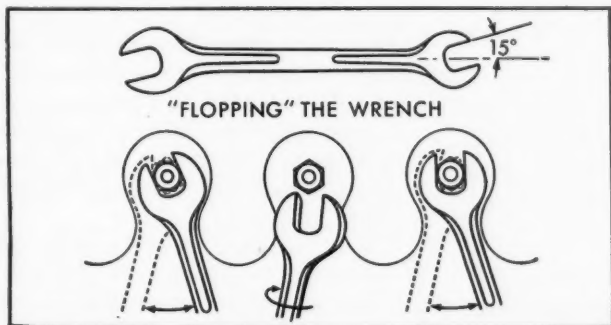


manner. Always place wrench on the nut so that the pulling force is applied to the stationary or immovable jaw. The adjusting knurl should be tightened so that the jaws fit the nut snugly. Williams "Superjustable" Wrenches are available in sizes 4" to 24" with capacities up to 2-7/16".

The openings of most open-end wrenches are at a 15° angle to the handle. This feature makes it possible to completely rotate hex nuts where swing is limited to only 30° by "flopping" the wrench. Always *pull* on a wrench unless of course there is no other choice. Pushing on a wrench is dangerous and may end in injury to the hands. Hammering on a wrench or slipping a pipe over the handle to increase leverage puts a strain on the jaws which they were not designed to take. This practice usually results in spreading the jaws beyond further use. Long handle or striking face wrenches should be used on frozen nuts or where nuts must be set extremely tight.



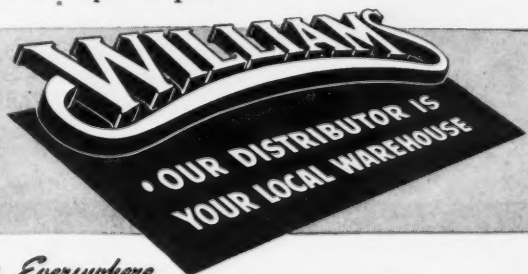
Williams Wrench Lines offer over 1000 sizes with openings from 3/16" to 7-5/8" in a wide variety of patterns for many special purposes. All are drop-forged from selected steel and heat-treated for maximum strength.



To insure maximum service from an adjustable wrench it is important that it be used in the correct

Copies of this and other "Memos to Mechanics" are available free upon request.

OPEN END, BOX, ADJUSTABLE & RATCHET WRENCHES; DETACHABLE SOCKETS & SETS; IMPACT SOCKETS; TOOL HOLDERS; LATHE DOGS, "C" CLAMPS, CHAIN PIPE TONGS & VISES; FLANGE JACKS; PLIERS; SCREWDRIVERS; PUNCHES & CHISELS; SOFT FACED HAMMERS; HOIST HOOKS; EYE BOLTS; ROD ENDS; CRANK & BALANCE HANDLES; THUMB SCREWS & NUTS; BODY & FENDER TOOLS.



J. H. WILLIAMS & CO., BUFFALO 7, N. Y. Distributors Everywhere

Chilton's MOTOR AGE, DECEMBER, 1951

town to do a little shopping," she explained, "and it took a bit longer than I expected. I hope the car's ready 'cause I'm late already."

"Oh, yes," said Tommy smiling to himself. The car was ready on time but he thought to himself, "You don't know how close it was to not being ready at all."

"Whoa, there," said Pop, "not

so fast. See that right front tire. I hate to be the bearer of bad tidings, Nancy, but if we don't switch that for you, you'll be walking home."

"Oh dear," said Nancy, "what shall I do I'm so late now probably no one will ever speak to me again."

"Well we can get you there just

nearly as fast as you could drive yourself," said Pop soothingly. "You leave your car, and we'll fix the tire. Tommy, run Nancy down to the church in my car, will you? We'll fix your tire and have the car waiting for you when you come out of rehearsal."

"Oh thanks awfully much," said the girl. "I'm really sorry to be such a nuisance for such a small job."

"Not at all," replied Pop enigmatically.

Tommy and Jane hopped into Pop's car, parked right by the door and were soon across town. Jane had not been exaggerating her lateness. One of the three Wise Men was waiting for her not too patiently by the church door, and the craning, small-sized angels were anxiously waiting a chance to burst into heavenly song.

With a quick smile and mumbled thanks she hopped from the car, raced across the sidewalk and up the stone steps beneath the graceful arches of the lovely ivy-covered, stone church.

When Tommy returned to Pop's, he found that Larry had the tire nearly changed.

"Boy," said Larry as Tommy came in, "she's some dish, ha! Reminds me of a girl I used to go with."

But Pop had long ago had enough of Larry's romancing stories, and cut him short. "Larry," he said with an artificial yawn, "your recitals of your own amorous interludes always remind of the story about the colored preacher who was hearing confession. In the middle of one long narration he stopped the young sinner and said, 'Young man you ain't confessin', youse braggin'.'"

Larry stared imperturbably at Tommy. "As I was saying before I was so rudely interrupted. And the girl I remembered had a fine soprano voice. She was always in the church pageants, too."

Abernethy Promoted by Packard Motor Company

Roy Abernethy had been promoted to the assistant general sales managership of Packard Motor Car Company. He succeeds Clare E. Briggs, newly named general sales manager.



**...TO SPEED UP YOUR SERVICE WORK
...TO HELP YOU TURN OUT BETTER JOBS**



No. 2784 4-Ton
Hydraulic Service Jack



No. 2767 1 1/2-Ton
Hydraulic Quick Service Jack



No. 2799
Adjustable Axle Support



Ajax
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Here's modern, trouble-free lifting equipment for every job—in the shop, on the driveway, out on the road. Here's the dependability that gives you a higher standard of service . . . the speed that increases your margin of profit . . . the uniformity that eliminates confusion and maintenance expense.

Rugged, fast-acting Ajax hydraulic service jacks—in 1 1/2-ton and 4-ton capacities—give you fast, safe, efficient service in lifting one wheel or an entire end.

Famous Ajax "Silver Horses"—low-cost, heavy-duty, adjustable axle supports—release your valuable jacks for use on other work. Their large, stabilized bases allow your mechanics to work in absolute safety.

Jack fluid and other service items, plus finest bumper jacks and portable hydraulics, round out the Ajax line—making this your one source, your dependable source, for every jack need. See the complete Ajax line of time-savers and profit-boosters through your Ajax Jobber. Or write for catalog.

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Over 50% of today's cars, trucks and buses are originally equipped with one or more of the famous products in the United Motors lines. That's why every second car that passes your place of business is a potential prospect—a pre-sold customer!—when you handle United Motors lines.

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The latest, accurate information on service as well as parts is offered by United Motors to save your on-the-job time and stop your after-the-job complaints. There are many other United Motors Service advantages such as aggressive merchandising to boost your business.

WHO'S WHO IN THE AUTOMOTIVE INDUSTRY!

A list of the United Motors lines reads like a roll call of the industry's giants. Likewise, the United Motors distributor and staff for your area are men of importance, backed by long and valuable experience in the automotive service business. Why not talk with your United Motors distributor soon?—You'll find his friendly counsel invaluable.



UNITED MOTORS SERVICE

Division of General Motors Corporation

General Motors Building, Detroit 2, Michigan

"WHAT SIDE

are you on?"

There are two sides to every question . . .
and even more sides to the answers. Take the
question of spraying and drying. Which side are
you on? Do you favor air drying or force drying?
Do you favor spraying cold lacquer or do you
intend to spray hot lacquer? You know the
answers to those questions but I'll give
you the answer to which paint to use . . .
and there's no two ways about it:
Martin-Senour lacquers and enamels
meet every modern finishing requirement!

**You're right when you use
Martin-Senour Hi-Solids Lacquers and
Synthol Enamels . . . no matter what
method of spraying or drying you use.**

Hi-Solids Lacquer Colors—Carefully formulated for either regular
or hot spray. Contain extra amounts of synthetic gums in combina-
tion with balanced solvents. Results in exacting work. Better match
to the original finish . . . better blending, gloss and weathering.

Synthol Enamels—Uniform performance . . . whether you use cold
or hot spray, air or force dry. Economical and easy to handle.
Superior covering and beautiful, lasting lustre.

Your N.A.P.A. Jobber Has Martin-Senour Hi-Solids Lacquer
Colors and Martin-Senour Synthol Enamels

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Factory Packaging . . . the only positive control from Factory to Finisher.



George E. Kious, Godfrey Nash
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and from shop to shop, but this is always
true: a good paint job starts with a good
paint. That's why we use Martin-Senour
Hi-Solids Lacquers and Synthol Enamels.
We know that's the way to get superior
results on every job . . . with the right flow,
the right build, and the right formulation
for deep gloss and durability."



THIS KIND OF BASIC LEADERSHIP MAKES
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Presenting the **'52 Pontiac**

with Spectacular ***Dual-Range*** Performance!



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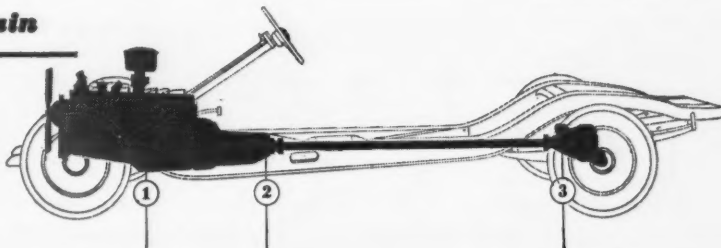
BE sure to see the great 1952 Pontiac! It brings you General Motors' sensational new Dual-Range Hydra-Matic Drive* — coupled with Pontiac's great high-compression engine—and a new high-performance, economy axle. At the *touch of your finger*, you can elect to have tremendous acceleration and snap and go! Or,

with equal ease, you can choose an altogether *different* type of performance; silken, gliding, gas-saving—perfection itself for the open road. In other words, you have the power you want—*where* and *when* you want it. And there are many *other* advancements in the new Pontiac, too. Better see it—*drive* it—today. It's a sensation!

*Optional at extra cost.

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- ① **More Powerful High-Compression Engine**
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THE POWER YOU WANT WHEN YOU WANT IT WHERE YOU WANT IT

DOLLAR FOR DOLLAR YOU CAN'T BEAT A PONTIAC • PONTIAC MOTOR DIVISION OF GENERAL MOTORS CORPORATION
Chilton's MOTOR AGE, DECEMBER, 1951

Complete

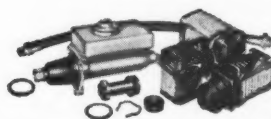


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—is an all season fluid that functions under all driving temperatures . . . Recommended for all cars and trucks . . . Mixes with other approved fluids. Surpasses S. A. E. standards.



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Coverage...

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2. **CONSTANT FRICTION** permits smooth even deceleration.
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You can depend upon Wagner quality because Wagner products are used as original equipment by automobile, truck and trailer manufacturers. Ask your jobber, or write us for free Catalog AU-500.

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name in brake service*

Please send me the latest Bulletins on
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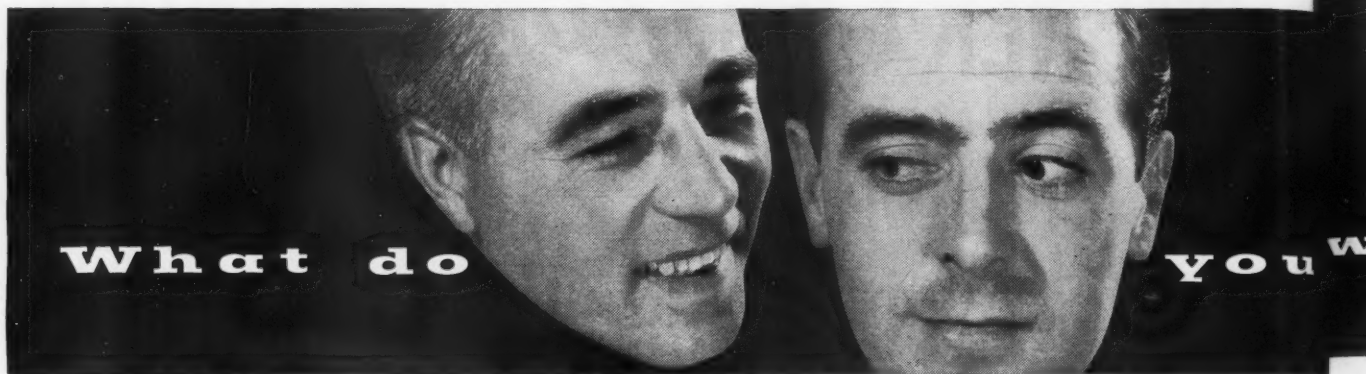
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● **You want editorial support.** That's what Farm Journal gives you through its exclusive "Keep 'Em Rolling" program. America's biggest rural magazine speaks your language by promoting better maintenance at a time that means greater profit to you.

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u want?



FARM JOURNAL GIVES YOU MORE THAN ANY OTHER NATIONAL MAGAZINE

Prove it yourself. Here's how . . .

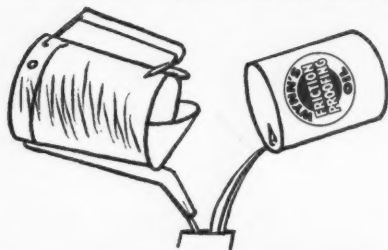
- 1 Write Dealer Service Department, Farm Journal, Philadelphia 5, for detailed information on the prosperous rural market right around your place of business and Farm Journal's coverage of it.
- 2 Ask for your *free* copy of the February issue. It carries another big "Keep 'Em Rolling" editorial feature promoting better automotive maintenance.
- 3 Tie in with "Keep 'Em Rolling." Any time's a good time to feature the products and services advertised in Farm Journal, but you get a promotional bonus when you go along with the "Keep 'Em Rolling" issues. Use the promotional material your supplier has given you. If you need more, get after him right away.

REMEMBER, THE FEBRUARY FARM JOURNAL WILL REACH YOUR BEST CUSTOMERS JANUARY 21.

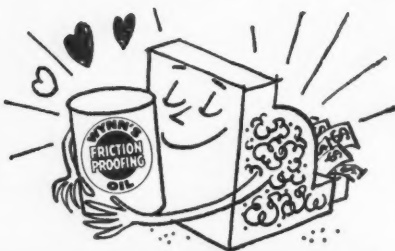
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FOR MORE PROFIT



NO MORE WORK

**WYNN'S GIVES YOU AN EXTRA 35¢*
CLEAR PROFIT ON EVERY OIL CHANGE**

Try this on every oil change job: Tell your customers Wynn's boosts gas mileage 10% or more, reduces carbon and sludge, gives engines more power, less wear. Takes a minute to sell — means 35¢ extra profit for you — simply for opening a can of Wynn's. Best of all, Wynn's nails down repeat business. Once a customer has tried it, he'll be back for more Wynn's every 1000 miles.

*Based on national average profit.



P.S. Clear an extra
38¢ by adding
Wynn's on every
T & D job, too.

**Wynn's Friction
Proofing Oil • Azusa, Calif.**

Silver Joy

Continued from Page 48

tion in several California dealerships.

It has derived its name from "Silver Joy," a Tennessee Walking Horse (the mascot of this dealership), used in all of their advertising.

The marker is an aluminum triangle with identifying numbers on it, which is placed on the top of each automobile and is held in place by a magnet. Large black numbers on a yellow background make it possible for the control tower, service salesmen, and mechanics to locate quickly any car in the Service Department. Colored plastic markers, shaped like horses's heads, are placed in the corners of the triangles. Different colors identify the service salesman who has written the ticket, and therefore allows quick recognition as he checks his jobs in the shops and aids the other service personnel when additional needed work is discovered.

If the car is to be delivered, a red-striped flag is placed in the corner. If there is a courtesy car out on the job, a black checkered flag is used. After the service salesman has written the ticket, he places a "Silver Joy" dispatcher on top of the car and this number is then written on the repair order.

From the dispatch tower, all cars can be seen and identified by their numbers. The dispatcher then sends the cars to the various departments for needed work. When the customer appears at the cashier's window to pick up his car, the cashier punches the car's number on a control panel in her office. The number appears on a bank of lights on top of the dispatch tower and a bell rings simultaneously.

The inspector, hearing the bell, sees the number and throws a switch at his inspection booth which cuts both the lights and the bell; this also signals the cashier that the car is being brought to the service floor. He gives the car his final inspection and delivers it to the customer on the reception floor where the repair order was originally written by the service salesman.

DON'T BREATHE EXHAUST FUMES!

Assure exhaust-free air to breathe. Cut down sickness, headaches, smarting eyes. Disappearing overhead and underfloor types. Built to order or as standard kit. Send for sketch sheet and new catalog.

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EXHAUST ELIMINATING SYSTEMS
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**Genuine
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"Measurably Better"
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SERVICE SPRING COMPANY
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MORE MONEY

for you and your mechanics

Mechanics are faster on their feet than on their backs. Time studies show that with Globe Hoists every mechanic can do 10 hours' work in 8 hours.

Figure that in terms of the extra jobs you can turn out every day. You will see why Globe Hoists quickly pay for themselves, and earn extra money for you and your mechanics.

(Write for illustrated bulletin MA-315)
GLOBE HOIST COMPANY
1000 E. MERMAID LANE, PHILA. 18, PA.
(Factories at Des Moines, Iowa and Phila., Pa.)

The "Name" Makes Sales Easier



Classified Advertisements

For sale—automobile dealerships. Leonard J. Schrader, 509 1/2 E. Green St., Champaign, Ill. Phone 9094.

For sale—auto sales & service agency. Exclusive franchise in prosperous New Jersey county for independent car mfr. Building & all equipment only 5 years old. Property includes 6,000 sq. ft. of floor space; showrooms, shops & offices. Franchise subject to mfr's. approval. \$60,000. Write Van Syckel, Inc., 20 Hamilton St., Bound Brook, N. J.

**WHY SELL LESS
THAN THE BEST?**

**Delco
BRAKE FLUID**



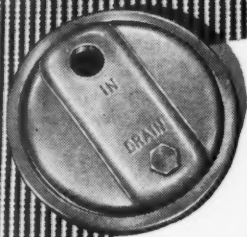
Delco brake fluids sell *faster* because they're *best*. They exceed S.A.E. specifications, have *proved* their stability under severest operating conditions. Order Delco Super 11 for trucks, buses and delivery units—Delco Super 9 for light passenger car use. Available in convenient containers—from 8 oz. bottles to 54 gallon drums.



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Available Everywhere Through
UNITED MOTORS DISTRIBUTORS

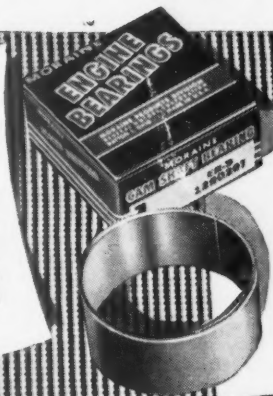
MORaine PRODUCTS

**DIVISION OF GENERAL MOTORS
CORPORATION • DAYTON, OHIO**



**MORaine
All-Metal Gas Filters**

Satisfy your customers by installing Moraine gasoline filters on their cars. Moraine's *all metal* filters seal out dirt, lint and water. Order from your United Motors distributor.



**MORaine
ENGINE BEARINGS**

Keep customers happy—sell durable, quality-made Moraine engine bearings. They're original equipment on GM cars, trucks and other popular makes. Order from your United Motors distributor.

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WE HAVE EVERY TYPE YOU WANT IN
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FRICTION MATERIALS CO. CHARLOTTE N.C.

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• REPAIR •
TIRE CHAINS

Always Recommend
WEED AMERICAN
V BAR-REINFORCED
The Best Buy in

TIRE CHAINS



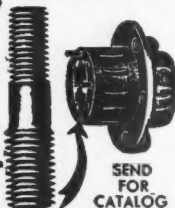
OVERSIZE

REAR WHEEL STUDS for all Trucks

Order from Your Jobber



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FOR
CATALOG

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Wiry Joe
AUTOMOTIVE CABLE

Manufactured by
THE CRESCENT COMPANY, Inc.
Pawtucket, Rhode Island



✓ CHECK THE WIRE
ON EVERY JOB

Welding

Continued from Page 53

avoid the dangers of warpage, distortion or residuous stresses which might crack the block upon cooling. When using the low temperature welding method the casting should never reach red heat when welding.

Welding white metal items such as door handles, radiator grilles, and horn bases, has always been a major problem. This is because the welder does not know the type of zinc alloy that they are to weld. In addition, fusion welding is difficult due to the tendency of these castings to collapse rapidly if they are overheated.

It is very difficult for the operator to sense that the metal is being overheated, because zinc does not show any heat colors. The zinc can be successfully welded using Eutec Rod 196. Prepare the base metal as follows: Grind or file off all the surface oxide; remove all platings or coatings of any kind from the weld area and the joint design should allow for the formation of the head, fillet or groove welds. When a beveled groove joint is used, the included angle should be 75 degrees to 90 degrees.

Calendar of Coming Events

Feb. 16-24—44th Annual Chicago Auto Show, International Amphitheater, Chicago.

Feb. 22-Mar. 1—Washington Auto Trade Assn., National Guard Armory, Washington, D. C.

Feb. 28-Mar. 2—Pacific Automotive Show, Pan-Pacific Auditorium, Los Angeles.

Feb. 29-Mar. 6—Kansas City Auto Show sponsored by Motor Car Dealers Assn. of Greater Kansas City, Municipal Auditorium, Kansas City.

Mar. 3-8—40th Automobile Show, Coliseum, Denver, Sponsored by the Denver Automobile Dealers Assn.

Mar. 8-15—Pittsburgh Automobile Dealers Assn., Hunt Armory, East End, Pittsburgh, Pa.

Mar. 10-11—Annual Convention of Louisiana Automobile Dealers Assn., Hotel Jung, New Orleans.

Mar. 20-23—10th annual Southwest Automobile Show, Sam Houston Coliseum, Houston, Texas.

Mar. 29-Apr. 6—Seattle Auto Show, sponsored by Seattle Automobile Dealers Assn., Field Artillery Armory, Seattle.

Apr. 7-8—13th Annual Convention, Missouri Automobile Dealers Assn., Muehlebach Hotel, Kansas City.

May 16-17—American Petroleum Institute Meeting, Book-Cadillac Hotel, Detroit.

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HAVE YOU A JOB FOR A TRAINED MECHANIC?

We have a number of alert young men who have completed intensive training in Automotive Mechanics, Automatic Transmissions and Body-Fender Rebuilding. They learned their trades thoroughly by working on actual equipment under personal, expert supervision. If you need a trained man, we invite you to write for an outline of our course, and for a prospectus of the graduate. No fees, of course. Address:

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FELT PRODUCTS MFG. CO.
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JIBO WHEEL ALIGNMENT
CAMBER TOOL—FITS
ALL CARS—NEW OR OLD

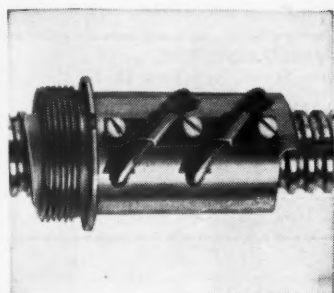
Mfg. under patent rights. Money back guarantee if not satisfied.

J-O-10 Increasing camber complete with J-O-12 Jaw \$34.00
J-O-13 Jaw for lighter spindles \$12.50
J-O-14 Decreasing att. \$12.50

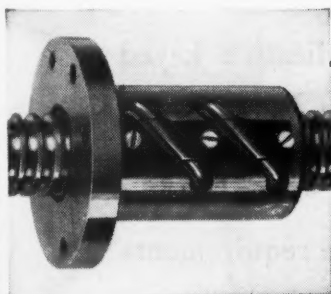
CASTOR SHIMS—5 degrees or thickness
AXLE SHIMS—1½ to 4" in all degrees
COIL SPRING SPACERS—top or bottom, contour or flat, for all cars

Ask your jobber or write direct
JIBO TOOL CO., 507 Biting Bldg., Wichita, Kan.

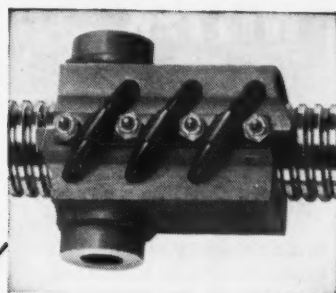
it's the
principle
of the thing...



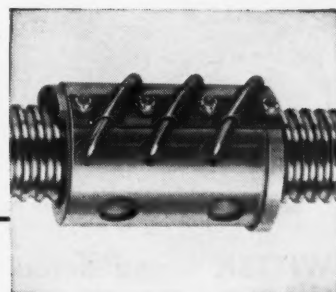
Threaded-type nut.
Two-circuit assembly.



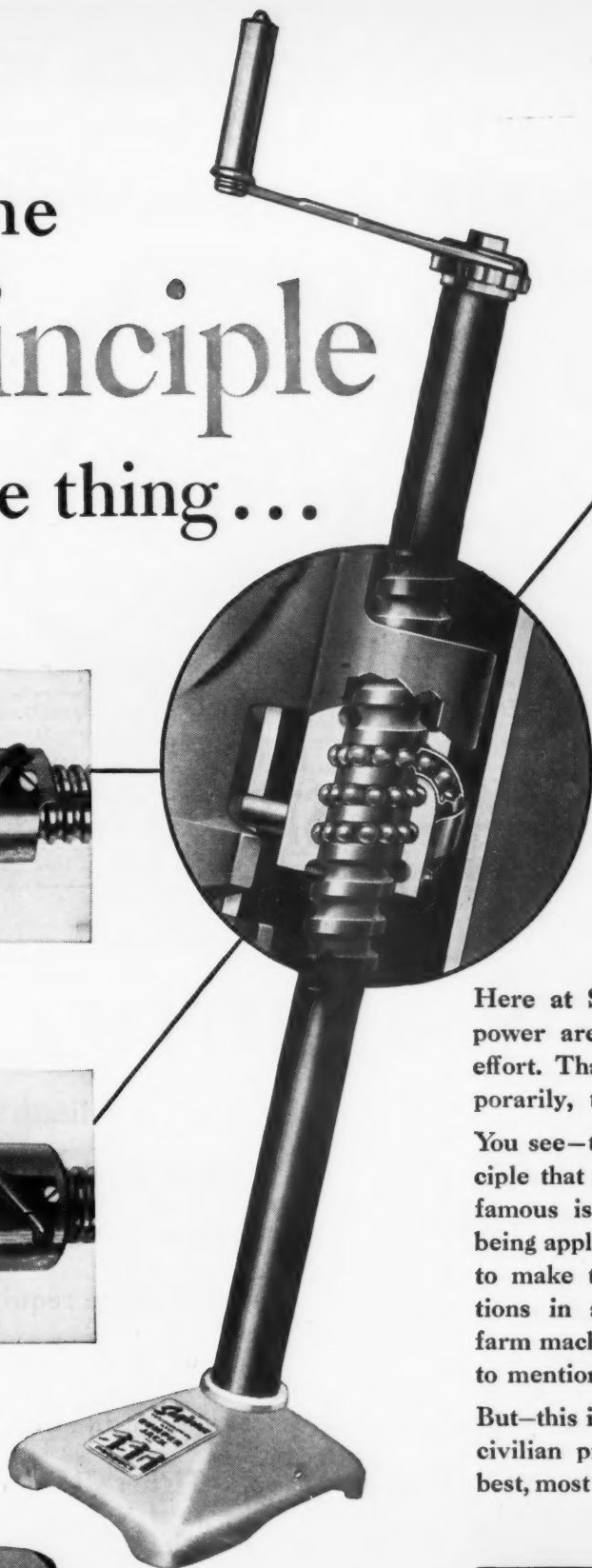
Flange-type nut.
Two-circuit assembly.



Internal or external trunnion-type nut.
Three-circuit assembly.



Internal trunnion-type nut.
Three-circuit assembly.



Here at Saginaw, most materials and manpower are being contributed to the defense effort. That's why we've had to curtail, temporarily, the manufacture of bumper jacks.

You see—the ball bearing screw and nut principle that made the Saginaw Bumper Jack so famous is the *same* principle that, today, is being applied to all sorts of mechanical devices to make them operate more easily. Applications in aircraft, machine tool, automotive, farm machinery, and boat building industries—to mention only a few—appear to be limitless.

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STEERING GEAR
DIVISION

General Motors Corporation, Saginaw, Michigan

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With a variety of sizes and types, there is a Wittek Hose Clamp for every hose connection. Easily and quickly applied or removed. See your jobber, or write for details.



Sure-Tite Display Package
 100 clamps for every size of radiator hose.



NOC-OUT



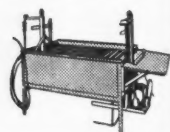
Noc-Out Display Package
 100 clamps in types and sizes for every application.

WITTEK Manufacturing Co.
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Dependable Hose Connections for Over a Quarter Century



FLO-TEST MACHINE
 diagnoses radiator ailments in advance.



TEST and REPAIR BENCH
 with Electric Elevator
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HOT CLEANING TANK
 for hot chemical cleaning.



DRAIN COCK FLANGE



No. 2805 Gloves
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TANK PATCHES
 for cracks around inlet.



TEST PLUGS.
 Sets or single,
 3/4" ID to 2 1/2" ID.

INLAND
 offers Everything
 for your
RADIATOR DEPARTMENT



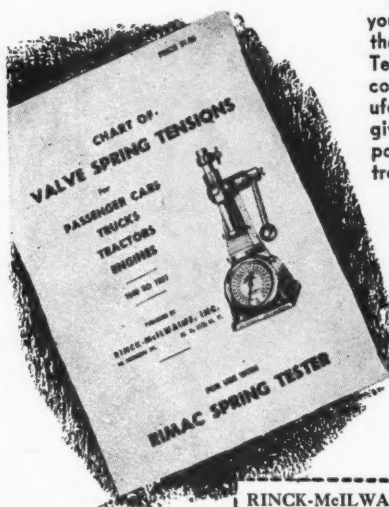
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No motor will perform at top efficiency unless all valve springs are at correct and uniform tension. Insure every motor overhaul job by checking spring tension with a RIMAC SPRING TESTER. Large dial, easy to read numerals, mechanism sensitive, smooth operation, rugged construction. Ask your jobber for a Rimac Spring Tester or send the enclosed coupon for further information.

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 Firm
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MOTOR AGE

—is a publication keyed directly to the needs of the automotive after-market. Built on the requirements of car dealers and repair shops. Edited by Frank P. Tighe. Read it every month.

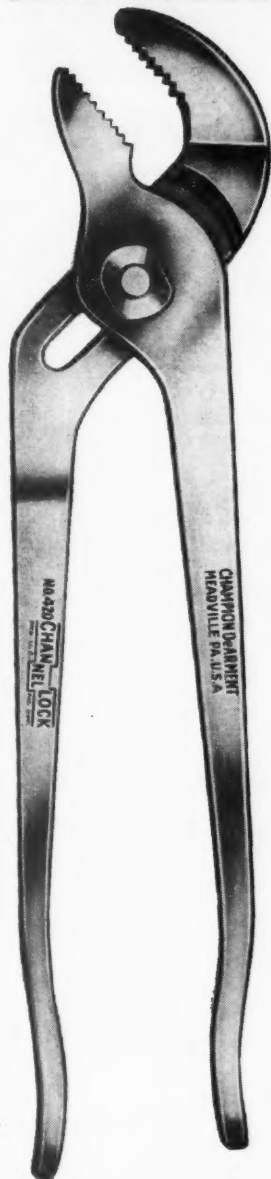


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Made only by
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DEARMENT



Here's Why...

Channellock pliers are versatile—you'll find many more uses for Channellock than for ordinary pliers. From bumper to bumper, under the hood or under the car Channellock pliers do the job better.

Channellock pliers are not household gadgets, they are skilled craftsmen's tools. Made by Champion DeArment with nearly 3/4 of a century of experience, they are designed for long, efficient service.

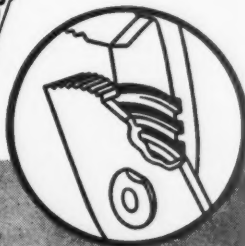
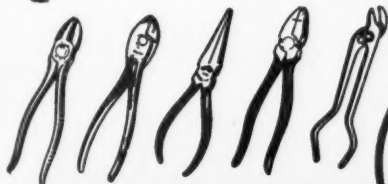
Ask your jobber to show you Channellock. Use it, feel it—then Buy it.

And remember — Only Champion DeArment makes Channellock.

Send for Catalog D8 today.

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TOOL CO • Meadville, Pa.

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Stay Ahead with D-X

Because You Can

Stand Behind Each Sale



THE D-X
TRIAL BOND
IS A GREAT
SALES CLINCHER!

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Guarantee

TRIAL
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A money-back guarantee of satisfaction on a tougher, safer, wear-saving motor oil. That's sweet music to a new car buyer's ears! And, that's just what you can offer when you sell D-X Motor Oil with Extrinol.

Service department managers all over the Middle West can tell you that it's easy to sell D-X with the D-X Trial Bond. And, those sales mean repeat service business and satisfied customers.

This year, the profit possibilities of D-X are greater than ever, because the D-X advertising campaign is the biggest in history. Write for information about the D-X Franchise for Middle Western car dealers—today!

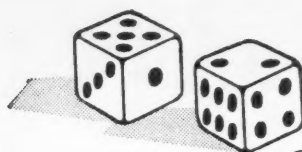


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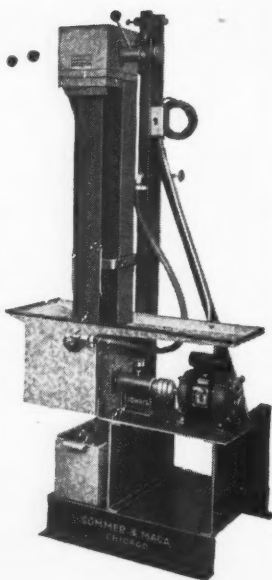
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Installing AUTO GLASS is profitable.

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ECONOMICAL
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TRUING

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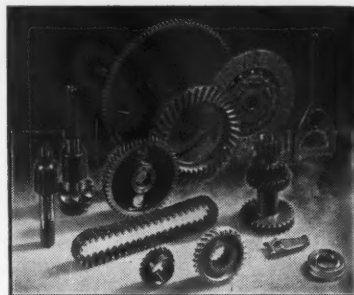
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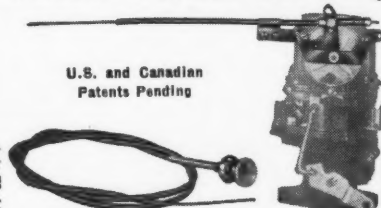
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**MANUAL CHOKE
CONVERSION KITS**

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Patents Pending



Our patented spring loaded device assures proper carburetor mixture, giving quicker, easier starting. Installs without removing carburetor. Fully guaranteed.

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BATTERY CHARGERS
are made by **FOX**



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HOSE CLAMPS

With stainless steel bands



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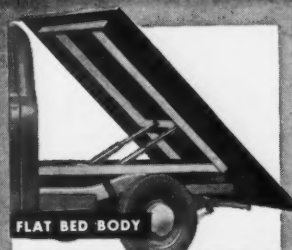
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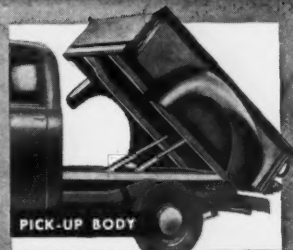
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Outfront

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CONVERTO *picUPac* HOISTS

Cash in on extra profits by selling the Converto picUPac Hoist, designed for quick installation on any pick-up truck or flat bed body. Converts ordinary vehicles into serving hundreds of uses. The picUPac stands up under the toughest hauling and dumping operations. Comes equipped with electrically driven or manually operated Blackhawk Pump. Here's a unit your customers need. Ask your distributor for complete information.



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 Wolf's Head Oil Refining Co. 20
 Wynn's 116

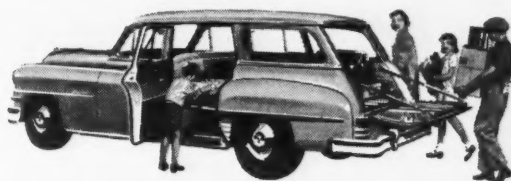
Zimmerman Packing Co. 122

Designed for YOU and your budget, too!...the 1952 DE SOTO

See it!...it's on display now at
your DeSoto-Plymouth dealer's.
You never rode so smoothly or
drove so easily. And you most
certainly never owned a car that
gives you so much in quality, yet
demands so little in upkeep!



*Big high-compression engine! Big
brakes! Long wheelbase! Waterproof
ignition! Safety-Rim wheels! . . .
and you drive without shifting!*



*Leg and luggage room galore in
every DeSoto model . . . chair-high
seats, big windows, wider doors . . .
room aplenty to stretch out and relax.*

★
DESOTO DIVISION - CHRYSLER CORPORATION



DE SOTO-PLYMOUTH Dealers present **GROUCHO MARX** in "You Bet Your Life" every week on both **RADIO** and **TELEVISION** . . . NBC networks.

Chilton's **MOTOR AGE**, DECEMBER, 1951

WINTER PROVES THE SUPERIORITY

OF THE **COLUMBUS**

Luxury-ride SHOCK ABSORBER

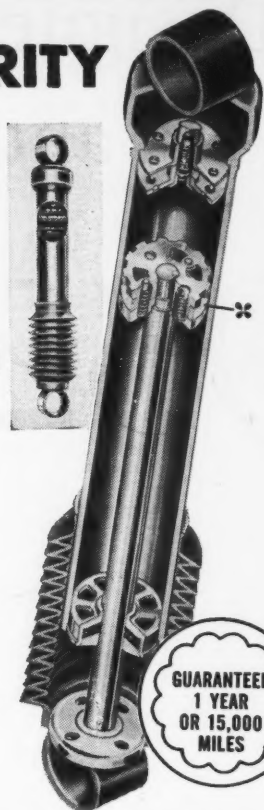
LICENSED BY DE CARBON

One of the 17 superior features of the Columbus Luxury-ride Shock Absorber is the *exclusive* Thermo Ring which expands and contracts in direct ratio to extremes of hot and cold temperatures. It thermostatically provides proper flow of fluid under all temperature conditions.

Cars that ride like coal trucks when the weather hits below zero will float as on velvet when Columbus equipped. Prove it to yourself; install a set on your own car today. It's the best shock absorber in the world!

"The Shock Absorber that Outsmarts the Highways"
**Stock up Now for
 Increased Winter Demand**

MANUFACTURED BY HECKETHORN MFG. & SUPPLY CO., LITTLETON, COLORADO



ANOTHER AUTOMATIC PRODUCT SOLD BY YOUR AUTOMOTIVE JOBBER

*Unexcelled
 in Quality and
 Performance*

All Linmar Water Pumps are factory duplicates of original equipment and all parts are interchangeable with those supplied by the car manufacturers. The unexcelled service record of Linmar Water Pumps in the field has been made possible by the use of the finest new materials obtainable, precision manufacture and exacting inspection and tests.

TOLERANCES	Manufacturing limits as low as .0002" are maintained on critical operations.
BEARINGS	Equipped with nationally known and advertised bearings, lubricated for life.
SEALS	Bellows type, made of synthetic rubber impervious to oil and reinforced to prevent cracking.
SHAFTS	Equipped with long wearing, precision manufactured shafts.
FITTINGS	Factory installed with special water repellent lubricants injected into the pumps during assembly.
BACK PLATES	Installed on all those pumps designed to require this part.
GASKETS	All necessary gaskets of the highest quality obtainable.
FINISH AND PACKING	All Linmar Pumps are specially treated for rust prevention. They are sturdily packaged and attractively labeled with the manufacturers part and the year and model of the car they fit.
GUARANTEE	All Linmar Water Pumps are fully guaranteed against defects in material and workmanship and for exact fit on the car designated. Write for Catalog L-7



Linmar Division — **AUTOMATIC STEEL PRODUCTS, INC. • CANTON 6, OHIO**



A Substantial Supplier to the Automotive Industry for Over 20 Years

AUTOMOBILE JACKS • AUTOMOTIVE GRINDING WHEELS • ONE-END LIFTS • MERCURY CLUTCHES

Reserve Power

... to take up future wear



Ramco Spiro-Seal... *another exclusive reason why Ramco*

ACTUALLY CURBS ENGINE WEAR



RAMCO RE-POWERING*
Program Helps You to
Help America Fight
Premature Engine Wear

Use the Ramco RE-POWERING Program to show customers that oil pumping is a warning sign which, if unheeded, will result in Premature Engine Wear. Sign up for the RE-POWERING Station Sign. Get the help of this nationally advertised program to sell more piston rings, Carburetion, Ignition, and Cooling services. See your Ramco Jobber Today.

*Nationally Advertised in

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POPULAR MECHANICS

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Piston rock due to wear hastens further wear... increases the rate of cylinder wear.

Spiro-Seal is an endless steel spiral. That is why it has within it the reserve power to *automatically increase its area of contact.*

This reserve power-nips in the bud any tendency for piston rock to de-

velop as the result of normal cylinder wear. It is one of the many reasons why Ramco 10-Up Rings not only compensate for wear but actually curb further wear.

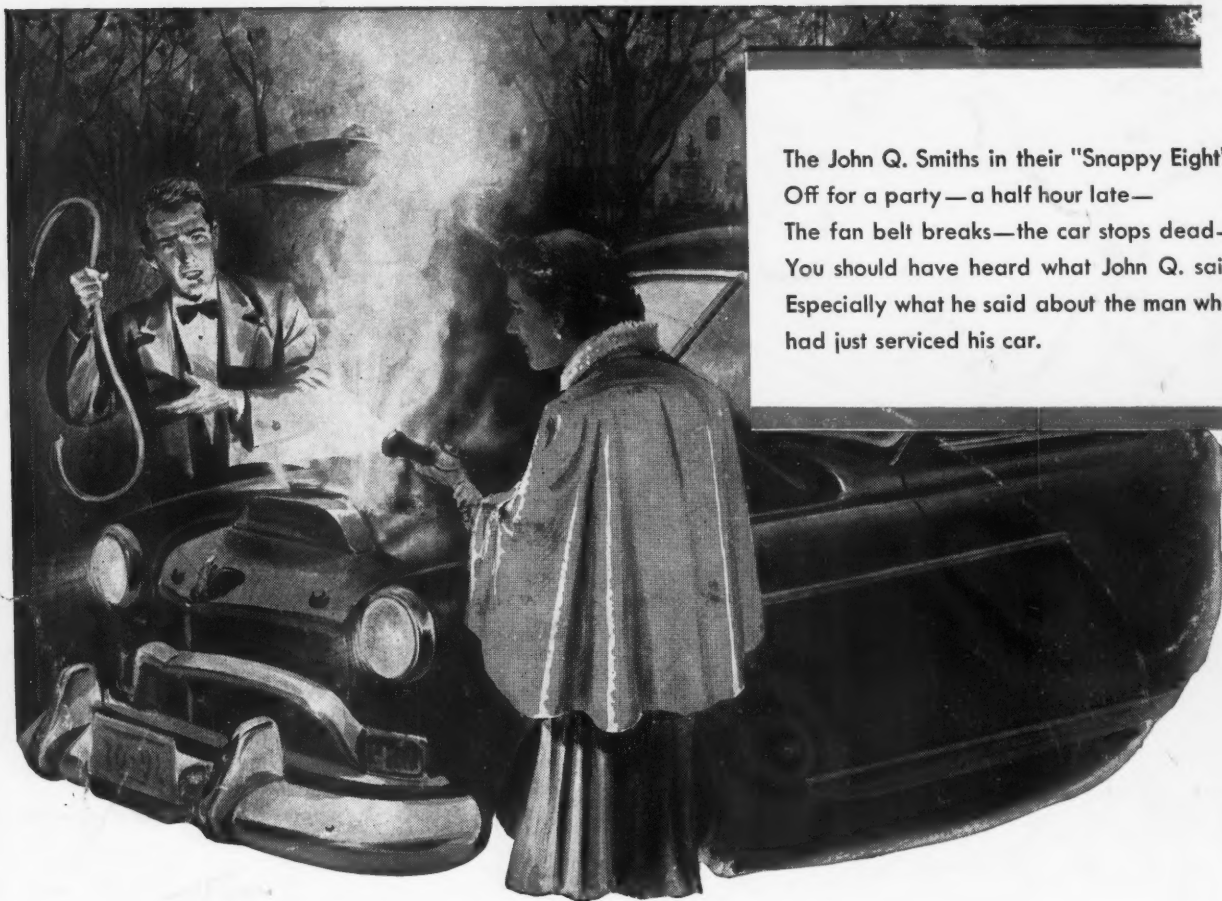
Do the Job Right for Today and Tomorrow! . . . Your Ramco Jobber Salesman will gladly give you the many profit-reasons why it pays to install Ramco 10-Up Rings exclusively!

RAMCO 10^{up} RINGS

Right for ANY Job
Re-Bore or Re-Ring • Car • Truck • Bus • Tractor



St. Louis 8, Missouri, A subsidiary of Thompson Products, Inc.



The John Q. Smiths in their "Snappy Eight"
Off for a party—a half hour late—
The fan belt breaks—the car stops dead—
You should have heard what John Q. said—
Especially what he said about the man who
had just serviced his car.

Was This The Car You Serviced?

...or do you always replace the fan belt before it fails?



Everything hangs on the fan belt, cooling, ignition, lighting systems. A sure fire way to lose a customer's good will—and lose the customer, too—is to let a broken fan belt leave him stranded on the road.

To postpone replacing the fan belt is simply laying up trouble for the customer and yourself.

Make your replacements with Thermoid Fan Belts. As you know, inferior belts soon stretch, lose their grip, wear out quickly. But Thermoid Fan Belts are "a horse of a different

color." Thermoid Fan Belts come to you *pre-stretched* for a longer life and more dependable service.

Thermoid Company • Trenton, New Jersey

Tell Your Customers These Facts About Fan Belts

A fan belt takes an awful beating from oil, grease, engine heat and just plain wear.

Automotive engineers advise playing safe by replacing fan belts every two years, or every 20,000 miles.

Thermoid

Brake Linings • Fan Belts • Radiator Hose • Hydraulic Brake Parts and Fluid • Car Mats • Clutch Facings • Thermoid Precision Process Equipment